Internists' Supplement

Contributed by

The American College of Osteopathic Internists

These papers were presented before a meeting of the American College of Osteopathic Internists, Philadelphia, Pa., July 12 to 14, 1946

Volume 2
Number 1

February, 1947
Pages 1 to 23

INTERNISTS' SUPPLEMENT

The American College of Osteopathic Internists

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Osteop. Internists Vol. 2, No. 1
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Experiences with Early Rising After Surgical Operation

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INTRODUCTION

Since April 1943, A. C. Johnson of Art Centre Hospital, Detroit, has been using cotton sutures and practicing early postoperative rising. To date early ambulation has been tried in approximately 4000 cases, and the statistics are being compiled. The actual procedure of early rising—how soon and how it is to be accomplished—has been worked out from our own experiences. Many factors have been, and still are being, considered in proving and evaluating the results of early postoperative rising.

Since the advent of this procedure and the beginning of the compilation of statistics in approximately 4000 cases, many problems have arisen. These have been solved by obtaining a better understanding in the fields of biochemistry, surgery, and surgical physiology. These studies have taught us improved technics, the necessity for proper suture materials,[1, 2] the fundamentals of wound healing,[1, 3, 4, 5, 6, 7, 8] the requirements of vitamins and proteins for optimum healing,[9] the fundamentals for regulating electrolyte and water balance,[10, 11] and the advantages of well chosen and controlled anesthesia.[12] In concurrence, many improvements have been made, both in the care of the surgical patient and in the end results the patient has derived. Only a varied and large number of cases can point out the basic principles that can offer a sound foundation for the acceptance and understanding of the advantages of early postoperative rising.

To date, literature offers articles reviewing 30,000 cases, the majority of which are from foreign countries. As yet, the greatest number reviewed by any one writer in this country is 400 cases.[13, 14] In the main, these articles tend to substantiate the fact that early postoperative rising offers marked improvement and a new era in the care of the surgical patient.

The procedure is not new, nor is it a fad; rather, it is one that has gained its momentum through time, overcoming the obstacles of trial and error, proving its principles, and manifesting its advantages. Fundamentally, it is substantiated by the principles of osteopathy. Andrew Taylor Still stated, "The rule of the artery is supreme," and, "To alter the structure is to alter the function," and vice versa. These two hypotheses are keys in the attempt at studying and explaining the advantages of early postoperative rising. The true explanations lie within the values of the basic sciences; they await new discoveries and depend upon increased knowledge and new application of known facts.

The acceptance of the early rising truth is a surety; the advantages are great; the possibilities are without number, and the principles are physiologically sound. Carefully controlled experimentation and detailed tabulation of statistics verify these statements.

HISTORY

The history of early postoperative rising, as revealed by the literature, suggests that surgeons, since the early days of modern surgery, were literally forced into recognizing the benefits of early activity after surgical operations. Many active patients refused to remain in bed, protesting against prolonged inactivity, and, by their own volition and unassisted, climbed out of bed the night of surgery or in the early postoperative stages and walked to the bathroom. Strangely enough, after such episodes, these patients more than likely evidenced feelings of well-being and actually healed faster and had fewer postoperative complications. It was the careful observation of a few such patients by a few alert surgeons that pioneered research on the subject of early rising technic. Careful experimentation was quickly followed by enthusiastic acceptance. To promulgate such a theory was to revolt, for it was an exact contradiction of one of the most widely accepted rules of patient care. Immobilization of the patients for long periods of time was an important part of the surgeon's doctrine, and such debilitating immobilization of surgical patients still continues to be the practice of most surgeons of today.

Emil Ries,[15] about the year 1899, became an advocate of the early rising idea, and his work probably antedates all such efforts in this country. Eight years later, his theories and practices became the subject of discussion in surgical circles from both the standpoints of rejection and acceptance.

A similar occurrence had taken place within the same decade in Europe. Kümmell[6] was the person of influence. His opinions apparently gave the idea prestige, and his practices were aided by the then pressing need for hospital facilities.

Of great interest is the fact that this method of early postoperative rising was forced upon the surgeons of the past by the patients' own volition or by the lack of adequate hospital facilities. The same situation prevails today.

DEFINITION OF EARLY POSTOPERATIVE RISING

Early postoperative rising is:

1. The bringing about of early bodily activity of the patient after surgical operation, causing the use of the voluntary muscular system (especially those of the antigravity group) and the skeletal system, in an attempt to reestablish normalcy of viscerosomatic function through the reception of physical and psychic stimuli directed toward a rapid and uncomplicated convalescence.

2. The activity, including active and passive exercises (walking, feeding, dressing, self-care in matters of toilet)[16, 17, 18] and calisthenics, the extent of which is determined by: (a) The patient's constitutional status before surgery; (b) the status of the respiratory and cardiovascular systems; (c) type, scope, and duration of surgery; (d) type and amount of anesthetic given, and (e) the patient's reaction during surgery.

The evaluation of these last factors plus immediate postoperative complications occurring within the first 24 hours, such as hemorrhage, atelectasis, and delayed shock, regulate the patient's activity. Complications encountered following this period, naturally, alter activity proceedings.

For the sake of study, patients are placed into 3 general groups—namely:

Early Group.—This includes those patients proving good surgical risks before surgery and having

uncomplicated anesthesia and surgery. Their initial rising may be from immediately following surgery (patients given local anesthesia for surgery and permitted to walk back to bed afterwards) to within the first 24 hours.

Delayed Group.—These patients experience their first attempt at rising within the second 24 hour period. The group is made up of those patients who are fair cardiac risks; patients who showed mild preoperative debilities and who required surgery before proper nutritional balances could be established; patients with delayed shock which is controllable within the first 24 hours following surgery; patients showing poor response following anesthesia and surgery, and patients in whom minor complications have arisen within the first 24 hours, suggestive of threatening major difficulties which later fail to materialize.

Late Group.—This group is composed, as the name suggests, of those patients in the previous groups, experiencing postoperative complications which necessitate quietude until they may be corrected. Also, it includes patients who are cardiac risks; patients showing marked debility and requiring prolonged bed rest prior to surgery; moribund patients; patients manifesting disabilities before surgery or those arising after surgery; patients experiencing thyroid crises, and occasional patients whose fear and malingering cause them to be uncooperative.

The time of initiating activity in these patients is directly dependent upon the circumstances encountered, with an earnest effort always being made to establish activity of some form as conditions permit. This group is by far the smallest in number.

DISCUSSION

Age old conservatism has hindered the acceptance of early postoperative rising just as such a stand has hindered many other developments in science. Today, the pressing need for hospital beds, the economic factor involved in the patient's early return to work, the high cost of living, and the patient's desire to investigate personally the stories he has heard from others who have experienced the benefits of early rising, are impelling the use of this improved technic.

To credit these factors as being all-influential is unjust, for some pioneers have been advocates of this method purely because of basic principles and because of the advantages early rising offers to the patient. Like any other procedure, if its principles, indications, and contraindications are not understood, and if it is abused, the results are unsatisfactory. Early rising does, however, offer a wide margin of safety, but, as in all therapeutic measures, it requires sound judgment. Favorable results are being cited in a steadily increasing number of publications.

ADVANTAGES OF EARLY RISING

The advantages of early postoperative rising are many. They are as follows:

Psyche.—This word is used to denote the patient's frame of mind before and after surgery. The influencing of the patient's mind is probably as important as, if not more important than, any advantages obtained by the use of the early postoperative rising technic. Although it is an intangible advantage and is difficult to measure or record by any standard, its effects are readily recognized as the patient goes through the preoperative and postoperative stages.

The cerebrospinal nervous system's intimate connection with the vegetative nervous system (the action of the one being correlated with the action of the other) is manifested in the patient's responses. The anxiety, apprehension, memories of past experiences, and anticipation of experiences that are to come which occupy the patient's mind for hours, days, and even weeks before he enters the hospital, greatly influence his response to preoperative medication, surgery, and the anesthetic. This influence persists throughout the period of convalescence, or at least until he has obtained a sense of security and well-being.

The greater percentage of patients who are ambulatory within the first 24 hour period following surgery appear to reach the state of well-being quicker than do those who remain in bed longer. This phenomenon may be observed in patients who have had a previous surgical operation where early postoperative rising was carried out. After the second operation, the patient is anxious to become ambulatory as soon as possible, for he knows he will feel better quicker.

Asthenia.—Asthenia is greatly reduced by early rising. Some degree of weakness is experienced by all patients but the degree is seen to be greatly diminished when compared to that of the nonambulatory patients. The maximum amount of weakness experienced is at the time of the initial rising. After this first attempt at activity, strength is soon regained and is maintained.

On the other hand, the bed-rest patient experiences such weakness at the first attempt at activity (which usually is initiated by "dangling," then by sitting in a chair, and finally by walking with assistance). In the bed-rest patients, the regaining of strength is a slow process. Proof is found when one compares the duration of the period of convalescence in the early rising and in the bed-rest patients. Convalescence begins with the first postoperative day and continues until the patient resumes full activity of employment and daily routine which was interrupted by his admission to the hospital for surgical treatment. It has been our observation that the period of convalescence for the early rising group is less than 50 per cent of that for the bed-rest group.

Nausea, Emesis, Pain.—The anguish brought about by the fear of surgery and its associated pain would be negligible if the patient could be promised that pain would not be experienced. Any severe pain, nausea, and emesis experienced following surgery amplifies the fears associated with a hospital. This barrier is being broken down today, because the early rising patient experiences far less pain; consequently, much less postoperative sedation is required. Early rising patients require from 50 to 75 per cent less narcotics than do bed rest patients. This diminished amount of narcotics reduces the number of gastrointestinal upsets, thereby decreasing the frequency of nausea, emesis, distention, and so-called gas pains. The per cent of normal evacuations is increased.

Narcotics are known to produce an inhibitory action upon the peristaltic action of the intestinal tract and also, in many instances, stimulate the vomiting center. This action of narcotics, plus the effects of pain (which comprise an emotional state), act through the sympathetic centers in the midbrain, spread their effects throughout the entire body, and, in the intestinal tract, inhibit both mobility and secretory activity.[19] The diminished amount of pain experienced by early rising patients is best explained by the return to normalcy of viscerosomatic function. The patient is in a state of autonomic imbalance and has a superimposed emotional status with altered endocrine function. This, plus the added effects of preoperative

medication, anesthetic agents, surgical trauma, foreign suture materials (with the danger of setting up local inflammation), and effects from residual intestinal content, tends to produce extraneous impulses causing pathologic reflexes. The myriad of patterns evolved from these impulses are epicritic, deep, and protopathic sensations, termed "pain" by the patient. The early establishing of body activity apparently disrupts these pathologic reflexes by expressing its influence through the skeletal tissues in their mediation between vegetative and cerebrospinal neurons. Normalcy of mobility and secretory activity of the intestinal tract are regained, lessening possibilities of distention due to increased nitrogen content of the bowel. This action minimizes deep and protopathic sensation and referred pain. Impulses initiated at the wound sites are apparently minimized, and their summation is not great enough to break through the vegetative and cerebrospinal neurons to reach the conscious level of the brain after normal reflexes have once been reestablished.

Catheterizations.—Less than 10 per cent of patients require catheterization after early rising, the greatest percentage being in females following pelvic surgery. It is not uncommon for the patient, at the initial ambulation, to walk to the bathroom and void spontaneously. Catheterization is often avoided by the use of prostigmine methylsulfate 1:4000. Most cases void spontaneously after the first catheterization. Lower abdominal and pelvic surgical cases have the highest percentage of catheterization, the involvement of the lumbar and sacral plexuses producing sympathic predominance, resulting in urethral sphincter contraction. Here again, establishment of normal reflexes by skeletal activity tends to overcome the sympathetic predominance of the autonomic nervous system, allowing normalization of bladder tonicity and voluntary control of the sphincter. The patients are assisted also by the knowledge that they can increase intra-abdominal pressure without causing wound disruption or severe pain.

Early Rising Patients Heal Faster.—The recent work of Newburger,[7] in his laboratory experimentation on the influence of exercise on wound healing in animals, has given much support to the clinical findings obtained from early-rising patients. The technic of Harvey[5] was employed by submerging the animals under water with a needle introduced into the peritoneal cavity. Air was forced into the cavity from an air compression tank which was attached to a mercury manometer. At the point when air bubbles escaped from the peritoneal cavity, the reading on the manometer was recorded as the disruption point of the wound. These readings were interpreted in terms of the tensile strength of the wound. All the animals having similar laparotomy wounds were divided into two groups: a control group not allowed to exercise, and an experimental group caused to exercise daily on a treadmill, starting the day of operation. The animals were killed on third, fifth, or tenth postoperative days. The tensile strength was found to be greater in the exercised animals in all cases; also, the exercised group reached maximum strength on the fifth postoperative day, whereas it required 10 days to reach maximum strength in the control group. This demonstrated that healing is enhanced by early activity.

Statistics show that there are fewer wound disruptions, postoperative herniations, and wound complications in those patients who have followed early postoperative rising procedures.[13, 14, 17, 18, 20, 21, 22, 23, 24, 25]

The reaction of the patient to suture materials and his ability to form scar tissue (keloid tendencies) are variable factors in the end result. It is well to point out that in early healing, that is by first intention, which takes place in early rising patients, a better end result is obtained. The incisions have more yellow elastic fibers and fewer white dense fibers, making for more pliable tissues.

Postoperative Adhesions.—This problem is a controversial one and the substantiation of its value must wait for laboratory experimentation and reports on reoperated patients. It has been the experience of Johnson and Powers[17] that a marked decrease of adhesions is found upon reoperation of early rising patients.[17, 20, 27, 17] It does seem that such should be the case when a patient is moving about within the 24 hour period immediately following operation and causing changes in the position of the abdominal viscera. It is within this 24 hour period that fibroplasia is initiated and the peritoneum seals itself. The lubricating function of the peritoneal fluid and the motion allow the viscera to reposition themselves and to move about freely. Chemical irritation from suture material may, however, produce excessive inflammatory activity, bringing about peritoneal irritation that might result in quickened fibroplasia, causing, within a few hours, the "sticking" of omentum or loop of bowel. Thus an adhesive band is formed. If the inflammatory reaction is prolonged, the band tends to become dense fibrous tissue. Where the inflammation is of short duration, the adhesive band is likely to reabsorb.

Reduction of Nursing Care.—This is of no little concern these days with the shortage of nurses being so prevalent. It is not difficult to understand that a patient capable of taking his own bath, going to the bathroom unassisted, and dressing and feeding himself calls for less attention from the nursing staff. This is true for the individual case; however, wherever early postoperative rising is practiced, the turnover of patients in the hospital is greater due to the shorter convalescent period, and the number of patients for whom a nurse may care is increased. The duties of the nurse do not necessarily increase in proportion to the increase in the number of patients, for a lesser number of patients with many postoperative complications call for more individual attention.

Need for special nurses.—This need is noticeably decreased. Nurses having their first experience with ambulatory patients are astonished and do their duties somewhat reluctantly. They are skeptical of the surgeon's orders and are concerned about the patient's welfare. Within a week's time, however, after having seen many patients come and go, they accept the "new fangled" procedure and begin to encourage patients to get up and walk.

Vital Capacity.—Diminished vital capacity following major surgical procedures has been recognized for some time. Its causes have also been understood. Among the causes proved by research[13] are splinting of the diaphragm, temporary paralysis of intercostal muscles, effects of general anesthetics, and surgical innervation via the nervous system. The value of vital capacity readings has had little recognition other than as a diagnostic procedure in chronic cardiac, pulmonary, and metabolic diseases. In recent years more consideration has been given to it as a measuring stick in evaluating a patient for surgery. Patients below normal vital capacity prove to be poor anesthetic and operative risks. Also, the rapidity with which these patients return to normal following surgery becomes of

great interest in that when normal vital capacity is reached, they have regained diaphragmatic function and proper oxygenation, which are necessary for normal metabolic activity.

Proper oxygenation is vital to normal biochemistry. Diminished vital capacity means diminished oxygenation of body tissues. The atmospheric air contains 21 per cent oxygen. Blood, passing through capillary beds, gives up 40 per cent of its oxygen content, thus leaving 60 per cent saturation on the venous side. Any of these values depends upon the rate of circulation. If circulation is impaired, the blood may give up 80 per cent of its oxygen content, thereby leaving only 20 per cent on the venous side.[28] When vital capacity is less than normal, the decrease of these percentages is directly proportional to the decrease in vital capacity. The pertinence of this factor, without detailed explanation, behooves one to establish early postoperative rising, because vital capacity in ambulatory patients returns to normal 30 to 60 per cent faster.[13, 17]

Pulmonary Complications.—Fewer pulmonary complications occur in early rising patients. Before the advent of chemical, oxygen, and antibiotic therapy, elective surgery patients were shown by statistics to have postoperative pneumonitis in approximately 10 per cent of upper abdominal surgery cases and in 6 per cent of lower abdominal surgery cases.[29] The prophylactic administration of the sulfa drugs and penicillin before surgery has brought about a noticeable drop in these percentages, not only in pneumonitis but in other pulmonary complications such as pleurisy, bronchitis, and atelectasis. The development of more volatile and less irritating inhalation anesthetics has further reduced the incidence of these complications. The effects of bacteria, virus, and chemicals in producing irritation of the mucosa, with an increase of mucus formation and lowered resistance of the pulmonary tissues, serve as etiological factors in postoperative pulmonary complications.

Pneumonitis: The incidence of pneumonitis has been greatly reduced by early postoperative rising, ranging from 2 to 4 per cent as an overall interpretation. Upper abdominal surgery tends to yield the greatest percentage of patients with this complication. The onset usually occurs any time during the first 72 hours after surgery. The duration is from 24 to 72 hours, depending upon how soon the complication is recognized and upon the adequacy of preventive therapy. The degree is, as a rule, mild and is seldom a termination cause.

The activity of these patients is modified, depending upon the elevation of temperature and the amount of respiratory embarrassment present. Most patients are encouraged to sit on the side of the bed, allowed to go to the bathroom, and are encouraged to take deep breathing exercises hourly.

Atelectasis: At one time a frequent complication with a high mortality rate, atelectasis has been greatly reduced. So marked has become the drop in incidence, that the condition has become minimized as a hazard.

Some investigators consider that any sudden temperature and pulse elevation, accompanied by rales, even though atelectasis is not demonstrable by x-ray, must be classified as such. Such cases, if treated as a pneumonitic process, respond to therapy.

The great reduction in incidence of these complications is brought about by the rapid return of the use of the intercostal and diaphragmatic muscles, with increasing vital capacity; increased aeration of the terminal bronchioles; ability to use the diaphragm for the expulsion of secretions, and shorter "lag period" of lowered tissue resistance due to improved oxygenation and circulation. In addition to all this, the patient retains confidence in his ability to cough for the expelling of mucus, without damage to his incision.

Pulmonary Embolism: Although embolism is a pulmonary complication, it is of foreign origin and will be discussed as a circulatory entity.

Circulatory Complications.—The frequency of circulatory complications has always been lower in early rising patients in comparison with other major postoperative complications. Sudden deaths during convalescence due to pulmonary embolism and the long bed-stay in phlebitis or thrombophlebitis have always been most disturbing episodes. Lay people, as well as the physician, have learned to know the significance of their presence.

Two decades ago, 3 persons in every 1,000 died of pulmonary embolism during convalescence. Passive exercises and frequent changes of position were attempted to diminish stasis in the leg veins. These procedures reduced the fatalities to one person in 800.[30, 31] Early rising procedures have eradicated the fear and the incidence of pulmonary embolism.

In the bed-rest patient, there is a loss of the pumping action of the skeletal muscles; improper oxygenation due to lowered vital capacity, and a lowered metabolic rate brought on by inactivity. The concurring drop in blood pressure results in diminished arterial and venous pressures. On the venous side, the "silting" out of cellular elements is effected by diminished velocity flow and hydrostatic pressure. Finally, all of these, being mechanical or chemical in nature and having coagulative effects, produce bland thrombi that are not attached to the vein wall. Sudden increases in physical activity or in blood pressure may dislodge the thrombus, resulting in an embolus that may or may not be fatal. Daily activity prevents the factors responsible for venous stasis of the deep veins from occurring. Thereby, it minimizes the incidence of bland thrombosis or phlebothrombosis.

Thrombophlebitis is a different type of thrombosis, in which there is an inflammatory reaction which produces painful swollen extremities. It is an established fact that infarct, or fatal pulmonary embolism is less common in this type of thrombosis because of the firm attachment of the clot to the vein wall. Phlebitis and thrombophlebitis, their causes being other than circulatory stasis, are reduced to infrequent complications in ambulatory patients.

Thrombosis: In those instances where thrombosis of the lower extremities is diagnosed or anticipated, ligation of the deep femoral vein is performed, and ambulatory activity is continued without deleterious effects.

Temperature.—The tendency toward normalcy occurs most frequently in those patients rising within the first 24 hours after operation. Approximately 40 to 50 per cent of them are normal within the first 36 hour postoperative period. It is well to remember that body temperature normals vary and that the body's response to infection, trauma, dehydration, emotional states, and climatic conditions also varies and is physiological. In those instances where the temperature has returned to normal early, along with the rates of pulse and respiration, the patient has few or no complaints. The overall finding is that temperatures do return to

normal quicker, depending, of course, upon the circumstances encountered.

Economical Aspects.—The shorter convalescent period of its patients allows the hospital to have a greater turnover and also a greater variety of patients. Obviously, the shorter the hospital stay and the quicker the patient is able to return to work, the greater the economy for him. Many times, the patient returns to work with a new outlook and with renewed vigor.

DISADVANTAGES OF EARLY POSTOPERATIVE RISING

There are no outstanding disadvantages of any major significance in the early rising care of patients. Like all new procedures, it may work to the patient's disadvantage if not thoroughly understood and carried out with good judgment.

INDICATIONS FOR EARLY POSTOPERATIVE RISING

Early rising technic is indicated in all surgical procedures with the exception of those in patients showing definite and clear cut contraindications. The exact early rising proceedings vary according to the patient's preoperative evaluation, the surgery performed, the surgeon's skill, the anesthetist's ability, the anesthetic agents employed, the hospital's facilities, and the efficiency of its staff.

Because it is safe for most patients to be ambulatory immediately after surgery, the necessity for the establishment of proper hospital routine becomes apparent.

CONTRAINDICATIONS

Anesthesia.—Patients who are poor anesthetic risks should not have early postoperative rising (within 24 hours). If the condition causing the patient to be a poor anesthetic risk is of a chronic nature, then ambulatory procedures must be modified somewhat, accordingly. If the causative condition is of an acute nature and is rectifiable by transfusion, etc., within 24 to 36 hours, then, with proper evaluation, ambulation may be established.

Pulmonary Complications.—Respiratory embarrassment, cyanosis, temperature elevation above 100 F., pulse rate above 100 with irregularity and poor quality, diaphoresis with cold clammy skin, and suggestion of cardiac decompensation or instability are contraindications for early rising.

Hemorrhage.—Internal or external hemorrhage with pallor, increase of pulse and change in its quality, restlessness, thirst, diaphoresis with cold and clammy skin, vertigo, drop in blood pressure, increased respiratory rate, and syncope are also contraindications.

Infection.—If infection is local and shows systemic involvement such as temperature above 100 F., pulse above 100 with thready or irregular beats, nausea, emesis, malaise, etc., early rising is contraindicated.

If generalized peritonitis occurs, or if massive drainage or abdominal tamponade have been employed, or if evisceration or infection of the wound occurs, no early rising should be permitted.

PROJECTIONS

Effect on Blood Pressure and Pulse.—At the time of this writing, for the sake of study, the blood pressure and pulse are being recorded on admission, immediately before initial ambulation, and immediately after. Daily readings are taken at approximately the same time each day until the patient is discharged.

It has become of interest to note that the great majority of patients experience only a moderate decrease or increase of the diastolic reading. In most instances, the readings before initial ambulation are below those taken on admission. The reading upon the patient's return to bed has demonstrated an elevation to normal in half the cases. No time average has been struck in attempting to determine when the readings returned to normal. The marked variations of blood pressure discourage any attempt at such a determination.

The pulse has proved to be a good indicator during the act of ambulation. As long as the quality remains good, the patient is in no immediate danger. Approximately 30 to 40 per cent of them experience vertigo, nausea, emesis, and syncope, individually or in any grouping, at the initial ambulation. As high as 75 per cent of bed-rest patients experience these symptoms at the first rising, 1 to 3 weeks after operation.

The Effects of Anesthesia.—At the very onset of establishing early rising activity, the problem of how soon the patient might safely become ambulatory was to be solved. The evaluation of the patient and the surgery performed were important but not more so than the type and amount of anesthetic given. The elective surgery patients, having to meet certain requirements in order to be good surgical risks, served as a control group in determining the time and amount of anesthetic given and how soon the patient could be ambulatory (this providing there was no impending shock immediately following surgery.)

It was soon found that the smaller the amount of anesthetic necessary the quicker the possibility of ambulation and well-being for the patient. Straight inhalation anesthetics, other than ether, if given for less than 60 minutes, permitted ambulation for the patient within 4 to 6 hours.

Since the majority of patients represented abdominal surgery cases, they were given spinal anesthetics with supplemental inhalation (mostly cyclopropane or nitrous oxide.) In determining the dosage of spinal anesthetics, the following have to be considered:[32] Surgeon (skill and operating time.); bony structure of patient (height and weight); age of patient; laboratory findings (erythrocyte count, percentage of hemoglobin, and urinalysis); operative procedure; previous surgery; metabolic state; adequacy of medication; and evaluation of vasomotor stability.

In all cases possible, the minimum of spinal agents were used (monocaine and nupercaine). The findings thus far in the series under study show that a maximum of short acting spinal anesthetic (monocaine) allows the patient to be ambulatory within 4 to 8 hours. Patients so anesthetized experience less postoperative complications such as vertigo, nausea, emesis, syncope, and initial ambulatory blood pressure drop. These patients also reach a feeling of well-being earlier.

The information so far leads us to believe that the type and amount of anesthetic given has a bearing on the time in which a patient may be ambulatory and the ratio of morbidity the patient experiences.

Intravenous alcohol as an adjunct.—A 1 liter solution of physiological saline containing 50 gm. of dextrose and 50 gm. of absolute ethyl alcohol, as prepared by Baxter Laboratories, is given immediately following surgery. At the present time more than 800 patients have received the alcohol solution intravenously after operations which include gastrointestinal, obstetrical, gynecological and urological surgery, thyroidectomies, and herniotomies. This group thus far has afforded a wide range for study from the stand-

point of analgesia obtained and the morbidity abated.

Following the administration of the alcohol, the amount of postoperative sedation and the per cent of catheterization, emesis, and nausea are reduced far below these already noted, after early postoperative rising. The alcohol given intravenously does not irritate the gastric mucosa nor does it stimulate the vomiting center. The alcohol has a high caloric value and it produces analgesia, vasodilation, respiratory stimulation, and a diuretic effect. Its use has a definite place in early postoperative rising procedures.

Suture material and technic.—The last decade has seen a sudden enthusiasm toward the use of nonabsorbable suture material. In the study of suture materials, much research has been carried on to determine their tensile strengths, local tissue reactions, and effects on the healing process. So keen has been the interest, that a multitude of articles has been published. Some articles deal with one particular suture material and others with comparative groups.

Nonabsorbable sutures, as substantiated by many authors, maintain their tensile strength longer, produce less serum formation, and permit fewer eviscerations, less wound pain, more rapid healing, and fewer hernia recurrences. They are more economical.

Mercerized cotton suture fulfills all these requirements more than any other material.[2, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45] Many surgeons have used cotton, as well as other nonabsorbable sutures, with poor results. They place the blame on the material. The principles as laid down by Halsted[1] for the use of nonabsorbable sutures still hold today. Within his own time, Halsted saw many surgeons attempt to use nonabsorbable sutures and fail. He remarked that if any surgeon had difficulty with nonabsorbable suture, the trouble was with the surgeon and not with the suture material.

In carrying out early postoperative rising technic, the surgeon must have confidence in his suture line in order to reassure the patient that the incision will not break open.

Using a fine suture material, with stitches placed close together and tied loosely, approximating like tissues layer by layer, and maintaining careful hemostasis calls for skill and a minimum of traumatization. Thereby a suture line stronger than the surrounding tissues is obtained.

CONCLUSION

The personal observation of some 4000 patients with frequent changes in technic, a control series for the sake of study, and the tabulation of overall statistics have shown the greatly reduced mortality and morbidity rates, the elimination of thrombophlebitis, phlebothrombosis and embolism, shortened convalescent period, and happy walking patients. The results of the study have proved to be convincing arguments in favor of the use of early postoperative rising technic. Patients rising within the first 24 hours tend to show a shorter and less complicated convalescence period and tend to obtain the sense of well-being sooner. Ambulatory proceedings should be established as soon as possible to achieve early rehabilitation and to reduce postoperative complications.

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Osteop. Internists Vol. 2, No. 1
February, 1947

Direct Writing Electrocardiography

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Cardiologists have long awaited the day when direct writing electrocardiography would be a reality. Because of the value of obtaining instantaneous electrocardiographic information at the bedside of the patient, it can be seen that this type of instrument would be of great assistance to the clinician.

In addition to the routine use of the electrocardiograph, continuous electrical recordings are extremely valuable on occasion, as in delivery and operating rooms, for research problems in detecting transient irregularities of the heart action, for teaching purposes, especially in large clinics, and in certain phases of pharmacological investigation.

For many years, investigators have attempted to develop an electrocardiograph embodying the direct writing principle which would be professionally acceptable. First, an ink writing model was developed and used with little success because of the mechanical difficulties. The stylus friction factor was never overcome sufficiently to produce accurate records, and the problem of ink-clogging was a disturbing one. More recently, however, following the advancements made in the field of electronics, another type has been presented which operates on the principle of electronic amplification of heart voltages.

Exhaustive research in connection with radar testing and development during the war years added to the engineering experience of those who assisted in the development of the direct writing electrocardiograph. Now that the war is over and manufacturers are beginning to operate on a prewar basis again, we will be approached by their representatives for demonstrations of the earlier models. An early evaluation of its practicability and efficiency may be helpful in determining whether or not the present instrument is comparable to conventional equipment.

Observations made during the past 2 months afforded me an opportunity to compare a direct-writing instrument with a string galvanometer type. I was especially interested in accuracy and quality of records, standardization technic, time required to take records, interference problems, vibration factors, durability, simultaneous recording, and its use as a portable unit. I realize that only a very short time was taken to test the equipment, but observations were made in an attempt to point out the more advantageous features as well as some of the sources of disturbance.

To be acceptable, this new type of electrocardiograph will have to produce records as good or better than those made by existing equipment. Because the physician is interested in the finished record and the ease with which it can be taken, the engineering details will be omitted in this paper except for a few basic principles.

The patient is prepared in the usual manner, with the three standard leads and the indifferent electrode. Heart voltage is amplified about 10,000 times; these multiplied voltages operate through an electrodynamic galvanometer. An electrically heated tip or loop is moved by the forces from the galvanometer, inscribing the tracing on heat sensitive paper covered with a wax-like substance. Unlike some of the former pen-writing models, stylus friction here is at a minimum because of the heat writing principle. The type of paper used was lavender colored being marked with 1 mm. time and voltage lines. The chart speed is 25 mm. per second, it being driven by a synchronous type motor, running at a constant speed. The writing stylus is in view, operating on a fulcrum and the tracing slips through a slot in the side of the cabinet ready for immediate reading.

Standardization is effected by the use of an automatic standardization pulse, which can be adjusted correctly to the height of 1 cm. The chart paper is in motion during this standardization procedure, and it was found on many occasions that considerable paper was used in getting proper standardization. This is a delicate procedure, but when once done, the entire tracing can be completed without restandardization.

A good ground connection is absolutely essential. With a special light indicator on the panel, which burns only when a good ground has been made, the technician can be assured of a minimum of interference. This instrument, if the ground is adequate, seems to pick up no more interference than other types. To further filter out interference, an interference reduction mechanism is incorporated into the unit. This can be controlled by a dial and has its advantages in production of well defined tracing.

The width of the tracing may be controlled by an easily operated adjustment which regulates heat intensity within the writing tip; the more heat developed, the wider the line.

Sometimes, a fine line is advantageous for close observation of special peculiarities of the various waves. Studies were made on patients having normal hearts, but, for the most part, records were done on those with cardiac diseases. On some, simultaneous recordings were made using the new type and the Einthoven string model.

Generally speaking, the records were comparable, but on numerous occasions the amplitude was constantly low as compared to the string record. The waves exhibited a well defined pattern in most cases when a low heat intensity was used. When the intensity was increased in order to produce a wide line, the paper smoked and was burned in many instances, thus eliminating the accuracy of the pattern. Slurring and notching were comparable when a fine or medium line was used, in most cases, but in a few the string galvanometer exhibited notching which was not shown by the other. When a fine line was made, part of the QRS complex was very lightly defined and difficult to interpret. Both the P and T waves were clearly outlined in most patterns. It was exceedingly difficult to keep the writing stylus on the base line on numerous occasions. A very sensitive control governs the position of the stylus on the chart. Sometimes we were delayed in making the adjustment. Because the stylus is extended from a movable arm, a deviation from the base line could conceivably cause an error in time and amplitude, even though it would be very slight. Another cause for possible error could result from paper slip on the roller.

The stylus tip as near as could be discovered, is made of nichrome which apparently has a tendency to erode. The process of erosion is, in all probability, due to the reaction of heat upon the chemical ingredients which make up the coating on the present chart paper. This factor offers a distinct disadvantage because of the problem of cleaning the delicately constructed tip. Too, with high intensity, it can be seen that the tip could burn out. Considering the stylus tip, erosion problem, and the questionable durability of the tip, I am forced to conclude that further research and experimentation will be necessary to overcome these inadequacies.

Permanent recording on heat sensitive paper will be improved upon as soon as some type of paper is made which will not smudge or scratch easily when handled during the process of mounting and reading, as with the present recording paper. The chief objection lies in the smudging's and scratching's giving an untidy appearance. Black and white paper has been manufactured, but it was not recently available. This would afford a distinct improvement.

The instrument is readily portable and was used in office, hospital, and home. It is comparable with other recent types in size, weight, and compactness. However, it requires more time to set up and take records than does the string type. First, it takes some time to standardize and requires the use of considerable amounts of film; second, some delay is encountered in stablizing the stylus tip on the base line.

Foremost among the advantages is the time saved by the omission of the developing procedure. This factor is especially appreciated when the physician is working in the patient's home. Developing equipment and rooms would be eliminated, with a consequent saving of both time and space.

Obviously the limited experience with this new type of electrocardiographic is insufficient for any kind of final evaluation to be made, but it is hoped that a few points have been mentioned that may stimulate our interest in this new development.

Times Building

Therapeutics of the Nephritides

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Fortunately, the past 3 years have seen rapid change in the entire handling of nephritis. This was doubtless due entirely to the logical approach to the problem that was advocated by George W. Thorn in his original Shattuck lecture.[1] It was Thorn's contention that nephritis should be treated on the basis of the perversion of physiology that was present. This treatment should be a qualitative and quantitative one governed largely by the changing chemistry associated with progress or regression of the disease. Testimony as to the efficacy of this therapeutic approach is probably best given by our handling of the diabetic patient. We are not so concerned with the integral pathology of the islands of Langerhans as with the perversion of carbohydrate metabolism and its attendant disturbance in lipoid metabolism which in turn produces acidosis, etc. We have, in this particular disease, arrived at quantitative treatment regimes based upon quantitative blood analysis.

Clinicians who have followed Thorn's concept testify, through current medical literature to the effect that this approach to nephritis is most efficacious.[2,3] Therefore, I shall consider first the various perversions of physiology and metabolism that are encountered in nephritides, and then I shall attempt to correlate treatment with pathologic physiology. Because of the limited space I shall not attempt a complete discussion of the basic principles of physiology. I shall, accordingly, attempt to arrive at a simple method of evaluating and determining the presence of these various metabolic disturbances.

Because of the economic factor, one may limit his chemical analysis to four determinations: (1) Blood nonprotein nitrogen or blood urea nitrogen, (2) the carbon dioxide combining power, (3) serum chlorides (4) total serum protein. The albumin-globulin ratio is not important because it has been found safe to assume that all patients with nephritis have some hypoalbuminemia. With these basic determinations made, the various pathological physiologies that are common to nephritis[4] may be considered.

Regardless of the efficacy of any particular therapeutic measure, the patient and the pathological process in action must be considered as a whole; accordingly, those elements that are common to all treatment are applicable here. In this category must be included fluid, vitamin, and mineral intake, and caloric values. These figures are well established by clinical and laboratory studies and require no comment other than to say that any therapeutic regime that fails to recognize these necessities of life is doomed to failure, or certainly to mediocrity. This is the primary basis for criticism of the therapeutic measures that have, in the past, been advocated in this diseased state. If in health the body requires a minimum of 1 gm. of protein in the diet per kilogram of body weight to prevent catabolic destruction, logic would be poor that would accept a therapy advocating a protein free diet. Restriction of fluid intake is, of course, in this same category.

The estimation of the adequacy of the diet of the nephritic patient may be rather difficult because of the false maintenance of weight associated with the accumulation of extracellular fluid. This same difficulty is common in the estimation of the water balance.[5] It is quite common to find actual dehydration in the presence of edema; however, the signs of dehydration are reliable and will give a satisfactory basis for judgment. These signs are dry skin, dry, beefy tongue, enophthalmos, etc. The edema may or may not be marked; however, one must remember a few points in relation to its etiology. Doubtless, the sodium ion is the most important agent in the production of extracellular fluid retention.[6] This retention, a reflection of the kidneys' inability to excrete sodium chloride,

Blood Chemistry		N.P.N. Elevated	N.P.N. Elevated CO_2 Depressed	N.P.N. Elevated CO_2 Depressed	Serum Chlorides Elevated Serum Proteins Depressed CO_2 Normal N.P.N. Normal	Serum Chlorides Elevated Serum Proteins Depressed CO_2 Normal N.P.N. Normal	Serum Chlorides Elevated Serum Proteins Depressed CO_2 Normal N.P.N. Normal	N.P.N. Elevated CO_2 Depressed Serum Chlorides] or [Serum Proteins] or [	N.P.N. Elevated CO_2 Depressed Serum Chlorides] or [Serum Proteins] or [	N.P.N. Elevated CO_2 Depressed Serum Chlorides] or [Serum Proteins] or [
Pathophysiology		**Azotemia**	**Azotemia c Acidosis**	**Azotemia c Acidosis c Hypertension**	**Edema c Hypoalbuminemia**	**Same c Hypertension**	**Same c Hypertension & Congestive Failure**	**Edema c Azotemia c Acidosis c Hypertension**	**Edema c Azotemia c Hypoalbuminemia c Hypertension**	**Edema c Azotemia c Acidosis c Heart Failure**
Purpose of Tx		To] glomerular filtrate by providing an excess fluid intake; NaCl is given to] plasma volume and prevent salt depletion.	To] the glomerular filtrate and provide an excess base.	To] the glomerular filtrate, provide an excess of base, and at same time protect the Heart	To] the colloid osmotic pressure of the serum thereby] plasma Vol. and aiding in renal elimination of NaCl.	To] the colloid osmotic pressure of the serum and at the same time prevent over taxing the Heart.	To improve Heart Status and to facilitate the renal excretion of NaCl and water	To prevent fluids used to] glomerular filtration from accumulating in body and provide an excess of available base and protect the heart.	To prevent fluids used to] glomerular filtration from accumulating in body, and] the serum albumin level and protect the heart.	To improve cardiac status and to provide a diet low in salt, adequate in protein, alkaline ash and adequate calories and minimum fluid.
Total Fluids		4000 c.c. daily	4000 c.c. daily	3000 c.c. daily	1500 c.c. daily +	1500 c.c. daily +	10-1500 c.c. Milk Only	2000 c.c. daily	2000 c.c. daily	1000 c.c. daily
Diet	Protein	1 gm. 1 kg. daily	1 gm. 1 kg. daily	1 gm. 1 kg. daily	2-3 gm. 1 kg. daily	1-2 gm. 1 kg. daily	Milk Only 3-5 days	1 gm. 1 kg. daily	1 gm. 1 kg. daily	Milk c Aluminum Hydroxide (8 to 16 c.c. 1 glass) 500-1000 c.c. Fruit Juice also may be added
	NaCl	Supplement Usual by 1. to 3. gm. daily	Add 1. to 3. gm. to Usual	No restriction	Salt Free	Salt Free		Salt Free	Salt Free	
	Ash	Alkaline	Alkaline 3 to 6 gm. $NaHCO_3$ daily	Alkaline 3 to 6 gm. $NaHCO_3$ daily	Acid	Acid		Alkaline	Alkaline	
Diuretic	Plasma or Albumin				25-50 gm. i.v. daily	10-15 gm. i.v. b.i.d.		10 gm. i.v. b.i.d.	15 gm. i.v. b.i.d.	
	Urea				30-60 gm. daily	30-60 gm. daily	30-60 gm. daily			
	Glucose	1000 c.c. i.v. daily 5% 3 to 7 days.	1000 c.c. i.v. daily 5% 3 to 7 days	50c.c. 20% i.v. daily						50 c.c. of 10% i.v. daily if cardiac status improves.
	Digitalis						Digitalization			Digitalization
	Aminophylline						0.1-0.2 gm. i.v. b.i.d.	0.1-0.2 gm. i.v. b.i.d.	0.1-0.2 gm. i.v. b.i.d.	0.1-0.2 gm. i.v. b.i.d.
Complemental Treatment		In the presence of nausea and vomiting use 3000 c.c. 10% glucose i.v. Also may use 500 c.c. Normal Saline i.v. daily Hypervantilation.	500 c.c. 1/6 molar Sodium Lactate i.v. daily. In the presence of vomiting i.v. protein should be given, in addition to the above 125 gms. daily!. Hyperventilation	In the presence of Hypertension the quantity of supplementary NaCl must be followed carefully (Edema)	In the presence of anemia whole blood transfusions are indicated. Ammonium Chloride Mercurial diuretics Force Fluids up to 3 to 5000 c.c. Acacia 12. gm. 1 kg. of 20% solution i.v. Pectin 10%, solution I.V. 500 to 1000 c.c.!	In the presence of nausea and vomiting Glucose solution 500 c.c. 10% i.v. q 6-8 hrs. and albumin or plasma 8-10 gm. i.v. q 6-8 hrs. may be substituted for the above.	Oxygen, Venesection, Paracentesis Great care c all i.v.'s. 50 c.c. 20% glucose i.v. q c evidence of improved circulation and cardiac status	Degree of acidosis will determine diet. Fluids by mouth to 5000 c.c. daily Peritoneal Lavage. Acacia i.v. Pectin i.v.	In the presence of vomiting, glucose 10% i.v. 750 c.c. q 8 hrs. or albumin or plasma 8 gms. i.v. q 8 hrs. Peritoneal Lavage	Oxygen, paracentesis, venesection c High V.P. fluids and protein solutions should not be given i.v. Peritoneal Lavage

[Denotes Increased
] Denotes Decreased

Therapeutic Chart for the Nephritides (revised from the Thorn table)

predicates an increase in the plasma volume. This hemodilution can be demonstrated by a fall in the hematocrit reading. These changes in the protein elements of the blood are accompanied by changes in the albumin-globulin ratio. It is well known that hypoalbuminemia will produce a striking reduction in the serum colloid osmotic pressure. This may also occur in the presence of a normal total serum protein level. Recovery from acute nephritis is usually associated with a rise in serum albumin and a fall in serum globulin. This common physiologic perversion in nephritis is not very responsive to high protein diets and amino acids given by mouth or vein, but it has been found that recently developed concentrated human albumin has some very striking transitory effects.[7] It acts immediately to increase the serum albumin concentration and, as a consequence, to increase the colloid osmotic pressure of the plasma. This, of course, leads to a rapid transfer of fluid from the extravascular to the vascular system with an increase in the plasma volume, a fall in the hemoglobin and hematocrit, and a subsequent return of serum albumin concentration and colloid osmotic pressure toward normal. The concentrated human albumin is packaged as a 25 per cent solution (25 gm. in 100 cc. of dilutent) and will soon be available for general use. Thorn has reported splendid results with a dosage of 50 gm. daily administered at a rate of 10 gm. per hour.[8] In patients who have edema, low serum proteins, and an absence of or moderate hypertension, and nitrogen retention, albumin was a safe agent in increasing the serum albumin level and in inducing positive nitrogen balance. We should, in the ensuing months, acquaint ourselves with this agent and continue to use plasma, whole blood, and perhaps acacia[9] or pectin.[10]

The inability of the kidney to form ammonia from urea will inevitably place a drain on the alkaline reserves with a loss of sodium and other fixed bases in the body's attempt to neutralize acid end products of metabolism and the acid ash of the diet. It is this principle upon which the Schemm[11, 12] regime is based, and its clinical value is most profound. I have incorporated most of the principles in the treatment outline accompanying the paper. Peters[13] has studied the changes that occur in nephritic blood plasma, and Gamble[14] has interpreted the clinical application of these changes. A determination of the serum chloride level and the serum carbon dioxide combining power gives a fairly accurate indication of the serum base under most circumstances, thus directing the use of sodium chloride, sodium bicarbonate, both, or the withdrawal of them.[15, 16]

With these basic metabolic principles in mind and with the necessary laboratory determination at our disposal, it is possible to compile a list of common disorders of renal insufficiency. It is also possible to outline a treatment program that will satisfy the necessities of life and will work to reverse the pathophysiologic processes.

The first of the agents to be used in treatment would, of course, be fluids. These should be administered both orally and parenterally and should be quantitive according to the amount of perversion of metabolism being dealt with. These fluids should be modified to provide adequate caloric intake for the preservation of fixed base reserves, to eliminate excess fixed base, to alleviate nausea and vomiting, to combat dehydration, etc.

The second group of agents should be dietary in nature. Their purpose is to fulfill similar needs by providing adequate protein, supplying an acid or basic ash, and governing, by sodium chloride intake, the electrolytic and ionic balance.

The third therapeutic measure should be diuretic in character. The fluids administered for this purpose increase the colloid osmotic pressure of serum and increase the plasma volume. They aid in the excretion of accumulated sodium chloride and, accordingly, en-

hance the circulation, thereby forestalling or improving congestive heart failure.

The fourth therapeutic measure is a group of treatments which I have termed, "complemental treatments." These are concerned with the complications that might be combated in special ways. Included in this category would be nausea and vomiting, left ventricular failure, and uremia. Morhardt[17] gives us knowledge of what to expect in the mechanism of death in the nephritic patient. Here, treatment that might be termed heroic is more acceptable. In this category, we should, at the present, put "peritoneal lavage." Abbott and Shea[18] have shown that nitrogen will diffuse quite rapidly into fluid which has been injected intraperitoneally and that relatively large amounts of nitrogenous waste products and presumably other toxic agents can be removed from the body in this fashion, without greatly altering the state of hydration or acid-base balance. This work is in its preliminary phase but certainly merits serious consideration and further clinical investigation.

The physiologic approach to therapy in the nephritides is presented with a revision of the Thorn[1] table for their therapeutic management.

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Streptomycin

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Streptomycin is the name given to the antibacterial substance which was isolated from the culture filtrate of a certain strain of Actinomyces griseus and was first described by Schatz, Bugie, and Waksman[1] in 1944. It has been received with great enthusiasm and hope because of its effectiveness in destroying many bacteria, especially the gram negative organisms which, in the main, have proved so resistant to penicillin. Streptomycin has an organic base, which has been crystallized. The two available salts are the sulfate and the hydrochloride. It is soluble in water, glucose, and physiological salt solutions and may be administered intravenously, intramuscularly, orally, intrathecally, into serous cavities, by bronchial instillation, and by nebulization. When it is given parenterally, most of it is eliminated in the urine. Following parenteral administration, the drug can be found to be distributed throughout most body fluids, such as the blood, urine, ascitic fluid, pleural fluid, aqueous humor, vitreous humor, amniotic fluid and bile. Small amounts of the drug appear in the spinal fluid in healthy persons. Intrathecal administration in doses up to 20,000 units does not produce signs of meningeal irritation. With such a dose, an appreciable concentration of the drug can be maintained in the cerebrospinal fluid for at least 24 hours. When the drug is given orally, 60 to 100 per cent is recovered in the stools and very little reaches the blood, urine, or other body fluids. In other words, there is practically no transfer in either direction through the wall of the digestive tract and, therefore, when treating a disease in which the organisms are found both in the gastrointestinal tract and the blood, one must administer the drug both parenterally and orally. Zintel[2] found that the blood level of streptomycin, following a single intravenous injection in man was better maintained than in the case of penicillin. Detectable amounts were usually present for 6 hours as compared with 2 or 3 hours with penicillin, even with the intramuscular routes.

Although much experimental work is being conducted on the clinical use of streptomycin, only a limited amount of knowledge is available as yet. An attempt will be made now to discuss the present status of streptomycin therapy.

URINARY INFECTIONS

Because of the high concentrations obtained in the urine upon parenteral injection, and particularly because so many organisms causing urinary tract infections have proved resistant to both penicillin and the sulfonamides, it was natural that streptomycin be given an adequate trial in such problems. Greey,[3] of the University of Toronto, reported that streptomycin is effective in destroying such gram negative bacteria as Proteus vulgaris, Aerobacter aerogenes, Escherichia coli, Psuedomonas aeruginosa, and Eberthella sp. Four hours after commencement of the therapy (1 gr. daily in 8 divided doses given intramuscularly) urinary cultures were negative for Proteus vulgaris, and after 8 hours, for coliform organisms. In one case, the urine became negative for Escherichia coli 2 hours after treatment. Jacobi[4] reported on a patient who had a persistent pyuria for 6 years following a transurethral prostatectomy. The main organism was Bacillus proteus which was later replaced for some unknown reason by Bacillus pyocyaneus. Both of these organisms are resistant to penicillin and the sulfonamides. Strepto-

mycin was administered after it was shown by laboratory tests, that the strain of the bacteria was definitely sensitive to streptomycin. The results were dramatic with no toxic effects. The dosage was one half million units for the first two doses, then a quarter million units every 3 hours thereafter. Helmholz[5] has pointed out that the sulfonamides, though effective against many bacteria responsible for urinary tract infections, are ineffective against Streptococcus fecalis and Pseuddomonas aeruginosa. His experiences, generally, have made him conclude that streptomycin should prove the most useful urinary antiseptic so far developed.

TULAREMIA

According to Foshay[6] Pasteurella tularensis is one of the most sensitive organisms in vitro to the bactericidal action of streptomycin. With only a few micrograms per milliliter the killing effect is complete within a matter of a few minutes. It is not surprising, therefore, that the parenteral administration of relatively low doses of streptomycin has proved remarkably successful in human tularemia. Although the mortality rate in this disease is low, its morbidity is high and of long duration. One patient who received streptomycin on the eighth day of the disease was sent home as cured on the seventeenth day. In another case with perisplenitis and generalized infection of the peritoneal cavity, the peritoneal fluid was noninfective on the sixth day after treatment, whereas such fluid is usually infective for at least 9 months. Of 7 patients who received streptomycin, all responded promptly. One of the cases reported was truly remarkable. The patient had been treated with hyperimmune serum and developed a serious relapse including tularemic pneumonia and peritonitis. On the one hundred third day of the disease, streptomycin was administered (50,000 units every third hour). In 8 days, the patient was afebrile and was in perfect health within 3 weeks. This result was spectacular since it has been considered usual for the duration of tularemic peritonitis to be even as long as 2½ years, according to the report of Kilbury and Fulmer.[7]

TUBERCULOSIS

Hinshaw and Feldman,[8] at the Mayo Clinic, treated 22 tuberculosis patients with streptomycin without any serious toxic effects even after prolonged administration in large doses. They concluded that any decision as to the therapeutic efficiency of the antibiotic must await further study. Hinshaw later observed that treatment with streptomycin gave some encouraging results in a variety of human tuberculous infections. The general impression at the Mayo Clinic has been that streptomycin exerts a limited suppressive effect, especially on some of the more unusual types of pulmonary and extrapulmonary tuberculosis. They concluded that in no instance should the usual treatment of sanitarium care and collapse therapy be given up in favor of treatment with antibacterial agents, including streptomycin.

The Committeee on Chemotherapeutics headed by Keefer[9] has this to say about tuberculosis. "For the present only those cases of tuberculosis which were already under treatment prior to March 1, 1946, are being studied. A broader program for the study of tuberculosis is planned, but it cannot be undertaken at the present time because of inadequate supplies of streptomycin. It is the hope of the Committee . . . to explore this problem further."

HEMOPHILUS INFLUENZAE INFECTIONS

Durant and his colleagues[10] at Temple University recently reported on their results in 3 patients seriously ill with pulmonary infections due to Hemophilus influenzae. In 2 cases, the intrabronchial route of administration was alone effective and in one, an extremely severe acute bilateral suppurative pneumonitis, the combination of intramuscular and intrabronchial routes was used effectively. No reactions were observed except when a crude preparation was administered temporarily. The dosage was 50,000 units in a 5 cc. solution which was allowed to gravitate into the left bronchus. In the parenteral administration, twelve million units were used the first 2 days, and smaller doses subsequently.

Keefer[11] recently reported on influenzal meningitis. The daily dosage recommended was 50 mg. per kilogram of body weight given by repeated intramuscular injections plus 25 to 50 mg. intrathecally. The fatalities were reduced, especially in the early treated cases. In the later treated cases, chronic hydrocephalus, deafness, and blindness are complications in spite of treatment. Seven to 10 days' treatment usually proved adequate in the successful cases.

Smith and Birmingham[12, 13] of the Johns Hopkins hospital have reported on the successful use of streptomycin in cases of influenzal meningitis. When insufficient doses of the drug were used, there was a definite development of drug fastness of the organism. It was believed that optimal treatment may finally comprise streptomycin coupled with sulfadizine or with serum therapy, or both.

TYPHOID FEVER

Reiman[14] was the first to report clinical results obtained from streptomycin therapy. Five patients with severe cases of typhoid fever were treated late in the disease. The clinical improvement of 3 patients seemed to coincide with the time of streptomycin therapy. The dosage varied from 1 to 4 gm. daily, 1 gm. being equivalent to one million units, given in divided doses every 3 hours. He concluded that both oral and parenteral therapy is desirable in treating typhoid, the one to control systemic and urinary tract infection and the other to sterilize the feces, to prevent reinfection, and to avoid the carrier state. There was evidence that different strains of Eberthella typhosa vary in their resistance to streptomycin. Keefer's results[11] have been disappointing in typhoid fever. He used from 4 to 6 gm. daily for 10 to 14 days and was not convinced that it shortened the course of the disease in the cases studied.

BRUCELLOSIS

Indefinite results have been reported in Brucella infections. In view of the variable behavior and chronic nature of the disease and the limited number of patients treated, no conclusion can be reached at this time. The results, though considered encouraging, are still inconclusive.

MISCELLANEOUS INFECTIONS

In Klebsiella infections (Friedländer group) streptomycin has been found to exert some action. When treated by Herrell,[15] 2 patients with Friedländer infections of the respiratory tract showed prompt disappearance of the organisms.

Flippin[16] observed that Salmonella as well as Eberthella coli infections are amenable to streptomycin. A patient with a colony count of twenty three million Salmonella in the stool gave a negative stool count after 4 days of oral therapy with 1 gm. of streptomycin daily.

Alexander[17] recently reported the cure of a patient critically ill with meningitis due to Escherichia coli.

The intramuscular dosage was approximately one million six hundred thousand streptomycin units daily for 4 days then one million units daily for an additional 12 days. The intrathecal dose was fifty thousand daily for 12 days, with one more dose on the fifteenth day. The total dosage was eighteen million, two hundred and seventy-five thousand streptomycin units intramuscularly and six hundred and fifty thousand units intrathecally.

TOXIC EFFECTS OF STREPTOMYCIN

It is interesting that many of the clinical reports indicate practically no untoward effects resulted from the therapy. However, Keefer[11] states that streptomycin is not as innocuous as penicillin and that 15 to 20 per cent of the patients given streptomycin developed side effects. Some of the untoward effects were fever and skin eruptions, usually within 8 to 10 days. Other symptoms were vertigo, tinnitus, and deafness which, though transitory, often lasted for 2 months. Occasionally, renal irritation with increased albumin and casts was noted.

Price,[18] in reporting on side effects developed by patients, stated that headache, flashes, urticaria, arthritis and fever were often seen early and simulated a histamine-like reaction. Their late toxic effects were deafness and vertigo, apparently neurotoxic in nature. It is probable that many of these side effects are due to the crude preparations sometimes used or to the extraneous material accompanying the drug. This occurred in the early use of penicillin. However, the seriousness of some of the toxic effects has prompted a recent editorial in the *Journal of the American Medical Association* which states in part: "Recent reports concerning the value of streptomycin in the treatment of tularemia, influenzal meningitis and urinary infections have created widespread demand for this antibiotic preparation. Unfortunately streptomycin, or perhaps the impurities now present in many commercial preparations, have toxic potentialities. Two fatalities from histamine-like reactions are known to have occurred, eighth nerve damage has been reported and delayed fatty infiltration of the kidneys has been observed in animals following administration of streptomycin. Not all batches of this drug produce these reactions; however, only extensive and well controlled laboratory examinations of each batch can separate the harmful from the safe lots."[19]

Before concluding, I shall outline the diseases which are now being investigated with streptomycin, under the control of the Committee on Chemotherapeutics of the National Research Council.

1. Gram negative bacillary infections of the genitourinary tract, resistant to the sulfonamides.
2. Gram negative bacillary infections with bacteremia.
3. Hemophilus influenzae infections, including meningitis, pneumonia, middle ear disease, and laryngotracheitis.
4. Friedländer's bacillus (Klebsiella pneumoniae), pneumonia.
5. Typhoid fever.
6. Salmonella infection.
7. Acute brucellosis with bacteremia.
8. Bacterial endocarditis due to gram negative bacilli.

The diseases which are not being investigated by the Committee now are:

1. Chronic idiopathic ulcerative colitis.
2. Lupus erythematosus acutus disseminatus.
3. Leukemia.
4. Cancer.
5. Fever of unknown causes.
6. Rheumatic fever.
7. Rheumatoid arthritis.

Regarding the procurement and allocation of streptomycin, a new program has been put into effect in order to determine whether the demand can act as an adequate guide for the supply produced. At the writing of this article, then, any hospital or institution may obtain its supply directly from any producer from whom it wishes to purchase. Enough of the drug is still not available, however, to permit the individual physician to purchase it in large quantities.

The present program of clinical research is being conducted by the concerted efforts of the government, streptomycin producers, the National Research Council, and civilian medical scientists for the sole purpose of obtaining the necessary information concerning streptomycin in the shortest possible time. The program is being supported by grants in aid from eleven pharmaceutical companies.

Finally, I must conclude this paper by emphasizing that this is only an introductory chapter in the story of the development of a very promising antibiotic. The clinical use of streptomycin is so recent that much yet has to be learned of the limitations, usefulness, methods of administration, dosage, toxicity, and other aspects of therapeutic use of this antibiotic. Supplies are restricted so that distribution of what is available must be carried out with the object of accumulating important information in the most efficient manner possible. Others have stressed the point that many requests for the drug will have to be denied, because patients selected to receive it must be those most likely to benefit. Physicians must be patient until the supplies are adequate and the therapeutic indications and dosages are more clearly elucidated.

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Osteop. Internists Vol. 2, No. 1
February, 1947

Clinical Classification of Pulmonary Tuberculosis

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For the purpose of keeping intelligible records, one should have some kind of classification of pulmonary tuberculosis upon which to base them. Because lesions are not static but dynamic and variable, such a classification is necessarily limited; however, even though the limitations are imposed upon it, a good working system can be obtained.

The National Tuberculosis Association[1] made such a classification which has been used by many authors. It is, in part, as follows:

I. Demonstrable Pulmonary Lesions
   - A. Extent of involvement by roentgen examination
     1. Minimal—slight lesion without demonstrable excavation, the total extent of which shall not exceed the equivalent of the volume of lung tissue which lies above the second chondrosternal junction and the spine of the fourth or the body of the fifth thoracic vertebrae on one side.
     2. Moderately advanced—the total extent of lesion if slightly disseminated shall not exceed the volume of one lung or the equivalent of this in both lungs. If dense and confluent in type, it may extend through not more than the equivalent of one third the volume of the lung. Total diameter of cavities, if present, is not to exceed 4 cm.
     3. Far advanced—the lesions are more extensive than moderately advanced.
   - B. Pathologic character as to predominant type
     1. Primary characteristics: (a) Exudative, (b) productive, (c) mixed
     2. Secondary changes: (a) Caseous, (b) fibroid, (c) calcified, (d) cavity
   - C. Dynamic status
     1. Not known
     2. Stable
     3. Unstable: (a) Progressive, (b) retrogressive
   - D. Pathogenetic phase
     1. Primary
     2. Reinfection

II. Symptoms
   - A. None
   - B. Slight
   - C. Moderate
   - D. Severe, regardless of the extent of involvement

Clinical pulmonary tuberculosis is the same at all ages. Confusion can be avoided if the term, childhood tuberculosis, is omitted and the terms, primary complex and reinfection or reinoculation, substituted. As a profession, we have been given less and less opportunity to follow through on cases of pulmonary tuberculosis as the responsibility of the disease has been taken over more and more by government agencies which are dominated by the allopathic school. Autopsy material is also meager because of the paucity of recognized pathologists.

Case finding, an expensive procedure, also has become largely a governmental project. However, since communicable disease control has practically done away with tuberculosis from bovine sources and methods of producing dependable immunity to tuberculosis are still experimental, the importance of detecting the disease and of segregating patients with readily communicable forms of it is obvious. The private physician should play a major part in this undertaking, remembering that contacts are more important than antecedents.

We may soon come to the point where a history of pleurisy, hoarseness, ischiorectal abscess, hemoptysis, and pain in the right lower quadrant of the abdomen will at once suggest tuberculosis along with many other conditions. If these symptoms accompany cough, malaise, low grade fever, loss of weight, menstrual changes, or digestive disturbances, then laboratory procedures, including x-ray examination, will be undertaken in addition to a thorough physical examination, especially of the chest.

At birth all individuals are free of tuberculosis producing organisms. Apparently, as seen from statistics gathered from over the world, some races have a native resistance which is higher than that in other races. When differences in nutrition, housing conditions, sanitation, and control of bovine tuberculosis are taken into consideration, these differences are probably not great. In this country the Irish have a high tuberculosis mortality and the Jews a low one.

PRIMARY COMPLEX

When an individual is exposed to tubercle bacilli for the first time (usually in infancy or childhood but this may apply to adulthood as well), there occurs a slight local reaction at the site of inoculation. The first infection of tuberculosis, at least in this country, is usually caused by inhalation of tubercle bacilli from an open case of the disease in some other human. The ingestion of bovine organisms as the cause of the disease is very rare now that pasteurization of milk is so widespread.

This site of inoculation is usually in the lower parts of the upper lobes of the lung or in the upper parts of the lower lobes and nearer the periphery (the pleura) than the hilum. Such a condition constitutes slight tubercular pneumonia. In most instances, it is a single focus, although multiple foci do occur.

If only small numbers of bacilli are present, little prompt inflammatory reaction is provoked. The organisms may remain free or be engulfed by wandering phagocytes for several days before multiplication increases sufficiently to cause an inflammatory reaction. Reaction may be prompt if large numbers of bacteria are inhaled. The degree of virulence of the organism and the native resistance of the host plus the degree of acquired resistance which develops as a result of the infection determine the extent of the lesion.

Many bacteria escape from the focus and are carried along the draining lymphatics to the regional lymph nodes—hilar, peribronchial, and peritracheal—but even these barriers are often not sufficient, and some organisms wander throughout the body. They

may be carried directly through the pulmonary lymph node lesions or through the sinusoids of the nodes and then through the thoracic duct to the veins. They may be filtered out in different organs such as kidney, spleen, bone, or lung apices. As a result of this bacillemia, sparsely scattered minute tubercles arise, which may be sterilized and absorbed, or viable organisms may persist and later become reanimated to give rise to disease of the organ even though the primary lesion in lung or regional nodes remains completely arrested. This wandering continues for about 10 to 14 days, and then peculiar changes take place in the individual. One of these changes causes fixation of organisms wherever they are, so that free wandering now stops, and any later migration is simply a mechanical accident. Another tissue change is an alteration in sensitivity of the tissue cells to the bacilli and its products. The positive tuberculin reaction is now obtained. Caseation of the pneumonic exudate and alveoli may now occur—the lesion is not encapsulated. If multiplication of bacilli is arrested by acquired resistance (usual outcome), the lesion becomes encapsulated, the caseous material becomes inspissated, calcified, or ossified. Absorption may even take place, leaving practically no trace of this material.

It is characteristic of this primary infection or complex that the regional nodes are involved and are much larger than the pulmonary lesion itself.

Some of these primary infections never become macroscopic if the number of bacilli present is small, and they may heal, leaving only a microscopic scar. A child may live for months in a household which is a source of infection, without developing macroscopic lesions or ones detectable by x-ray and without becoming hypersensitive to tuberculin. Others may be reinfected by the same source. The primary complex may become progressive, spreading by contiguity and causing large and excavating pneumonias which may ulcerate into a bronchus and lead to bacillary dissemination throughout the bronchial tree. The caseous primary lymph node foci may ulcerate into bronchi, causing tuberculosis, bronchopneumonia, and death as direct result of primary focus. Bacilli may invade the circulatory system and cause lesions in the meninges, bones, kidneys, and other organs.

The healed primary focus, encapsulated, calcified, or ossified, varying in size from several millimeters to a centimeter or more in diameter and occurring anywhere in the lung (but usually near the pleural surface) is the characteristic remains of a well resisted primary infection—the Ghon lesion.

Constitutional symptoms may be mild or absent. A low grade fever may be present for days or weeks and may subside and recur. Loss of weight or, usually, failure to gain weight may be noted. Irritability or listlessness may be a feature. Physical signs may be lacking. The Ghon lesion may take months or years to develop; however, it has been found in young infants.

The primary complex consists of the focus of infection in the parenchyma and one or more foci in the tributary lymph nodes, which may be encapsulated by fibrous tissue, calcified, or even ossified.

Of all the persons who acquire the primary infection at some time, only a minority develop the clinical disease, and this usually occurs years later.

Pottenger[2] states, that, less than one-third of the children are now infected (determined by tuberculin tests). This compares favorably with nearly 100 per cent so infected 40 years ago.

As time goes by this may lead to decrease in racial native resistance and increased susceptibility. Then, primary infection may become more common in adults, who have escaped it in earlier life.

Once infected, the host lives in a constantly changing equilibrium with the bacilli. Many factors such as intercurrent disease, overwork, fatigue, exposure, or trauma may stir up an apparently quiescent focus by providing a favorable enough environment in the tissues surrounding that focus, to allow the living but inactive bacilli (which are, nevertheless, capable of taking on new activity) to multiply and grow.

SECONDARY INFECTION

Reinfection or reinoculation tuberculosis is today considered clinical tuberculosis. It is usually a spreading infection or, at least, an unstable one capable of retrogressing or progressing. This was formerly known as adult tuberculosis, but such a term should be omitted just as should the term, childhood tuberculosis.

I have made use of the classification of Ornstein, Ulmar, and Dittler[3] as presented in 1931. This classifies pulmonary tuberculosis as to pathogenesis and according to clinical observations. Such a system has proved most helpful for recognition and prognosis. In other words, it is qualitative as well as quantitative.

The body is now sensitive to tuberculoprotein, and a peculiar change has taken place in the tissues whereby the organisms are fixed where they are implanted; therefore, in this reinfection type, the organisms do not wander through tissues and vessels freely; thus the tributary lymph nodes are not involved grossly. This is an important differential point between primary and reinfection types.

It is not possible to say how often reinoculation occurs from exogenous or endogenous sources, according to Pottenger.[2] Fewer bacilli may be needed to cause a primary infection in the uninfected than in the immune. Such a fact is shown by myriads of bacilli that pass over bronchial mucous membrane daily without implantation but with healing of lesions in some cases.

Pottenger feels that the route of invasion is mainly through the air passages in the primary phase; however, the organisms may be ingested with food or precipitated in the nasal secretions then swallowed, escape digestive action and enter lacteals, be carried to the lungs through the thoracic duct, the venous system, right side of the heart, and branches of the pulmonary artery.

The apices tend to filter out these organisms as these tissues are flattened out due to a change in direction of the ribs, occurring when the upright position of adulthood replaces the horizontal position of infancy. The vessels are also more tortuous, as described by Rich.[4] Reinfection in adults usually occurs long after the primary complex has calcified; however, rapid reinfection or superinfection may occur during the primary complex by either bronchogenic or hematogenous routes, due to rupture of partially healed caseous foci. Rich cites the case of an infant who had a primary complex in one lung (parenchymal focus and regional lymph node focus) while in the other he had a miliary formation without gross involvement of regional nodes.

The committee on diagnostic standards of the National Tuberculosis Association[1] lists the following potential sources of reinfection:

I. Exogenous:
   A. Inhalation
   B. Swallowing

II. Endogenous:
   A. Primary pulmonary focus which may break down and discharge directly into other parts of the lungs
   B. A caseated primary regional lymph node focus which may rupture into bronchus, causing tuberculous aspiration pneumonia of varying extent and severity
   C. Bacilli from active primary regional lymph node focus which may reach the lung and other parts of the body by way of the lymphatics and the blood stream, resulting in multiple or single foci
   D. Small apical foci which may, after having been stationary or undetected for a prolonged period of time, become progressive, ulcerate, and discharge bacilli into the bronchial tree

Reinfection in adults, by whatever route, may be roughly divided into two main types: (1) Exudative and (2) productive.

The main factors governing the type of tuberculosis are the relative sensitivity of the host and the number and virulence of the organisms therein. The exudative reactions are characterized by high tissue sensitivity to tuberculous antigen, with an immediate and explosive tissue change when contacted by the bacilli. The extent of change depends upon the size of the dose. The productive reactions are characterized by low tissue sensitivity and a small number of bacilli.

Generalized tuberculosis (miliary) may occur early or late and is an accident due to hematogenous spread to the organs in general, if pulmonary in origin, and to the lungs, if extrapulmonary (skeletal and urogenital) in origin. The acute form is fatal in 4 weeks, while the subacute of chronic form persists longer.

BENIGN EXUDATIVE TUBERCULOSIS

A highly sensitive individual inhales a small number of organisms sprayed out by another with positive sputum. The response in a highly sensitized lung will be tremendous exudation, serous in nature, into the alveolar walls and the alveoli with a few cells and a small amount of fibrin. The few bacilli, which were the cause, may soon become disintegrated and destroyed. They may be difficult to find, and present for only the first few days of illness. An acid-fast stain as well as a gram stain of all smears should be made. An endogenous source may be present when the organisms spill over from one part of the lung to another, uninvolved portion.

If the individual is removed from the exogenous source—and this means that the family should be examined—or has no more spill over, the exudative reaction will subside.

The patient becomes suddenly ill just as with any other pneumonia, exhibiting general symptoms of any toxic state—fever, tachycardia, malaise, anorexia, or prostration. The severity of the illness will depend upon the extent of involvement, from mild to severe. Cough and expectoration may be slight. Physical findings may be meager, such as slight dullness over the affected part or diminished intensity of breathing, with occasional high pitched rales. The symptoms characteristically subside rapidly, and, in a week or 2, the patient is feeling quite as well as if only a cold had affected him.

Hemoptysis, when present, is of great significance and it may be profuse or scant at the onset. This symptom was present in nearly one-half of Ornstein's cases and serves to differentiate tuberculosis from the common cold.

The x-ray findings may be amazing with respect to the extent of the lesion, involving an entire lobe or large wedge shaped portions. Serial pictures, taken during periods of a few weeks to a few months, show entire clearing, usually without scarring. If exogenous in origin, the lung may return to normal; if endogenous, then the original focus remains and the new one clears. The cases are highly contagious as are other infectious diseases and should be isolated. Treatment need be no more than bed rest, avoidance of contacts, and attention to nutrition.

EXUDATIVE PRODUCTIVE TUBERCULOSIS

Here, again, the reaction of the highly sensitized tissue is one of exudation, but, because of the presence of a larger number of organisms, some destruction of lung tissue occurs. There may be small areas of caseation and tubercle formation may occur, usually along the margin of the reaction. No sloughing or destruction occurs. More fibrin and cells are present in the exudate than in the benign form. Because of this, resolution occurs more slowly, usually requiring 6 months to 2 years; however, the end result is nearly complete absorption with a few remaining scars which show in the roentgenogram as fibrous strands marking the small areas of previous caseation. Clinically, the disease is acute in onset (like lobar pneumonia). The temperature is more persistent than in the usual coccic infection, lasting 2 or 3 weeks and subsiding by lysis. Hemoptysis is again a differential point. If only a small area is involved, the symptoms may be grippal in nature. The expectoration is more copious and persistent than in the benign form, but organisms are usually in the low Gaffky counts (I—III).

The lesion may be central and may give few physical findings. Coarse, moist, high pitched rales are usually present, but they may be musical in character. Bronchovesicular breathing and dullness to percussion are noted.

X-ray, again, demonstrates exudative reaction of varying size which occurs commonly in the upper lobe, limited by the interlobar fissure.

Prognosis is based upon serial x-ray pictures, the clinical picture, with its comparatively rapid clearing, and a low Gaffky count. The x-ray picture may be that of an extensive lesion in the beginning. This clears slowly, as is demonstrated in serial pictures compared to clinical manifestations. The appearance may resemble an acinous productive process as resolution takes place in an uneven manner.

Treatment is isolation, as in benign form, and symptomatic during acute stage. Bed rest is advised as long as patient is toxic. After this, rest may be modified during the chronic stage. Collapse therapy is contraindicated during acute exudative process for fear of spontaneous pneumothorax (at least first 6 to 8 weeks).

CASEOUS-PNEUMONIC TUBERCULOSIS

The most severe form of exudative pulmonary tuberculosis is caseous-pneumonic tuberculosis. The productive phase begins late, after sloughing of necrotic tissue. Depending upon the stage of the disease, various names are given it, such as fibrocaseous and fibroulcerative. The onset is similar to the onset of the resolving exudative form, but, unlike the benign, the symptoms persist. The number of organisms is large, causing overirritation and cell death from the excessive stimulation of the hypersensitive reaction. The area of cell death can no longer return to normal; this may be likened to the 4 plus reaction in the Mantoux test, with necrosis. This area of necrosis must be sloughed out, producing cavity formation and reparative scarring.

The exudate is albuminous, with much fibrin and many cellular elements, polys, round cells, and epithelioid cells.

When the necrotic area has sloughed out, a tubercular scar is left, studded with tubercles, which constantly sheds bacilli; this accounts for the bronchogenic spread, the intermittent periods of activity, the quiescense, and the involvement of larynx or intestinal tract (ulcerative form of intestinal tuberculosis).

The acute stage now comes to a close, and the chronic proliferative phase begins with contraction of scar tissue and subsequent distortion of the mediastinum (displacement). Clinically, this form has an acute beginning, in a highly toxic patient. If a cough is not pronounced in the beginning, it soon becomes so, with profuse expectoration laden with bacilli (in the high Gaffky counts). It is advisable to search stomach contents in a mild case. Hemoptysis in amounts from a dram to a pint is common. The temperature may remain high for many weeks, or it may recede after 10 to 14 days and continue as a septic type, low in the morning and from 103 F. to 104 F. in the evening. The pulse rate follows the temperature curve and may remain elevated after the slough has taken place and the patient has lost much of the toxemia. Physical findings are those of pneumonia.

In the chronic phase, the patient may gain weight and strength although cough and expectoration persist with many bacilli demonstrable. There is the constant threat of endogenous reinoculation by bronchogenic spread. From now on, the recurrence of symptoms suggests a new area of infection which may resolve as in benign form or excavate as in the caseous-pneumonic form.

When laryngeal or intestinal complication occurs, the patient may become toxic without change being noted in the chest, but symptoms point to more remote involvement.

It should be understood, that this involvement may be minimal or widespread (far advanced); however, a cavity is present even though small in size. A patent cavity may allow a diffuse seeding, through the lung, of an acinous type giving the impression of massive involvement. X-ray changes may be many and rapid from the dense exudative shadow at the onset to the softening, excavation, and single or multiple cavity formation. Bronchogenic spreads cause rapid change or multiple small areas of seeding. Peripheral cavities may be accompanied by much thickening of both visceral and parietal pleura. Dense adhesions may form and obliterate the pleural space. Prognosis varies from 50 to 90 per cent fatality rate over a 5 year period.

Treatment.—This is best left in the hands of the experienced phthisiologist. The important things seem to be the recognition of the continuity of the acute and chronic stages (with exacerbations) and the fundamental tissue response to tuberculous antigen. The goal is removal of bacilli from the bronchial tree. Isolation is demanded. In the acute stage, bed rest will allow evaluation of the degree of destruction of tissue—whether a benign or malignant form of disease is present. Control of excessive cough is necessary. Oxygen may be used as necessary. Nutrition must be adequate. Spontaneous pneumothorax may occur and probably should remain undisturbed. The pleural fluid that gathers may act to close the opening. If air flow to the opposite lung is interfered with, from shifting of the mediastinum, then some relief of pressure is necessary.

CHRONIC PRODUCTIVE TUBERCULOSIS

Chronic productive tuberculosis occurs in an individual of low sensitivity. Attempts to desensitize the acutely sensitive individual and produce this type of reaction have been made by many investigators. Most ambulatory tuberculosis patients have this type of reaction. Onset is insidious and extends over a period of many years (20 or more). It may follow an acute episode of the exudative productive type where some acinous productive changes remain. The patient is usually seen in fourth or fifth decade complaining of some extrapulmonary symptom. He has paid no attention to a "smokers cough" and slight expectoration. Episodes of increased cough, expectoration with or without blood streaking, and a slight temperature have been passed off as a cold. These episodes may actually be due to small exudative foci resulting from a bronchogenic spread, because small areas of caseation develop. Hemoptysis is not uncommon but occurs in small amounts, and this may cause patient to consult a physician.

The process usually starts at an apex and creeps slowly down the lung. Because of the presence of small numbers of organisms and relatively little exudative response, the individual lesions are small, and rather normal lung tissue surrounds them. Several lesions may coalesce and small areas of caseation occur, which will cause a bronchogenic spread. If the number of organisms is large, the reaction may change and an acute caseous-pneumonic type, develop. The patient will become acutely ill and become worse rather rapidly. Clinically, these patients are never very toxic. They may become short of breath as time goes on. They are usually thin because of the slowly developing anorexia. They are also flat chested and pot bellied, complain of fatigue late in the disease and also of poor muscle tone. Hemoptysis may recur but usually not to a great extent. These patients are often diagnosed as having chronic "bronchitis." Such a disease is commonly the source of a primary complex in younger members of the family, especially during short periods of bronchogenic spread.

Physical findings are meager. A few rales may be present in an apex. Associated compensatory emphysema may mask findings; asthmatic rales may be present. Percussion of Krönig's isthmus may show narrowing or obliteration; deep breathing does not expand the apices or one apex may lag definitely. Sputum examination is unsatisfactory and should be frequently repeated using concentration. If a caseous focus is present, low Gaffky counts may be obtained.

X-ray pictures show shadows which are small and disseminated with an acinous distribution and a mottled appearance. The irregularity in size and shape and the unequal distribution differentiate the picture from blood stream infection (miliary). The density is much less than that of calcified areas of first infection. Conglomerate nodules may occur and caseate with a resulting small cavity (honeycomb appearance). Eventually both lung fields may become involved. There is rarely deviation of the mediastinum or trachea. Complicating emphysema and widening intercostal spaces in the lower chest may be noted. New infiltrations are recognized by softer shadows. When an apical cavity seeds a lung with small acinous lesions of about the same age, it probably should be treated as a caseous-pneumonic process.

Treatment is difficult to plan. When an extension takes place, the patients should be rested, probably in a sanitarium, until symptoms abate. They should be

kept under observation. Physical examination, blood count, and sedimentation rate should be checked with the temperature chart if the patients are not feeling well. They do not seem to be candidates for years of sanitarium care.

Too much has probably been crowded into this paper, but this classification has proved of great value to the writer, and if only one physician's ability to recognize pulmonary tuberculosis has been improved, it will be worth while. Nothing original has been presented. Remember that immunity or specific resistance is a labile mechanism. Treatment secures a truce between patient and bacilli.

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Prostigmine

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Parasympathomimetic drugs of the class to which prostigmine belongs are best understood in terms of acetylcholine. Acetylcholine is the acetic ester of choline. It is the mediator of efferent nervous impulses to the voluntary muscles and to the smooth muscles of the alimentary, respiratory, and urinary systems, and to the salivary and sweat glands. It constricts the pupil and dilates the blood vessels and participates in the clotting of the blood[1] and in the healing of wounds[2].

Acetylcholine is synthetized by the nervous system and brain (in vitro) in the presence of adenosine triphosphate and an activator[3]. The synthesis is enhanced if citric acid is added. The precursors of acetylcholine are derived from a group of methylated amines which the body is not able to synthetize, and so they must constitute a part of the diet, namely choline and glycine.

Acetylcholine has two distinct actions, the nicotinic and the muscarinic. The first is annulled by curarine and the second by atropine. The nicotinic qualities stimulate the ganglion cells (by facilitation at the synapse) and act upon denervated mammalian muscle. The muscarinic qualities are imitated by pilocarpine, that is, stimulation of the muscles of the heart, bronchioles, alimentary tract, and bladder, the salivary and sweat glands, constriction of the pupil, and vasodilatation.

In surgery, and particularly following surgery, some of the muscarinic qualities are desirable, but in neuromuscular dysfunction, they are seldom so and are ablated by the simultaneous administration of atropine, when any drug is administered which potentiates the action of acetylcholine.

Prostigmine and eserine (physostigmine) potentiate the action of acetylcholine by delaying the action of choline esterase.

The value of prostigmine in surgery lies in the fact that it aids in the expulsion of flatus, lessens the need for catheterization, reduces the threat of thrombosis, aids in wound healing, and, in orthopedic surgery, lessens spasm of voluntary muscle. Objections to it are that, by its vasodilating action, prostigmine tends to lower blood pressure, toward engorgement of the operative field, and to delay clotting time, thereby making hemorrhage difficult to control. It is a valuable postoperative adjunct.

Therapeutically, prostigmine is as near a specific for myasthenia gravis as has been produced and is of marked benefit in a condition heretofore most discouraging to treat. The excellent results in myasthenia gravis encouraged its use in a wide variety of neuromuscular dysfunctions, and moderate to good response has been observed in spastic paraplegias, anterior poliomyelitis, arthritis, and bursitis. There are claims that it is beneficial in relieving the spasm of hemiplegia.

J. O. Shaffer[4] has recently reported a case of Guillain-Barré syndrome in which he used prostigmine with excellent results. The Guillain-Barré syndrome is an afebrile paralysis involving the muscles of the extremities, back and neck. In Shaffer's case deglutition was present. The tendon reflexes are absent while the superficial reflexes, abdominal, cremasteric, and Babinski's, were retained. The condition is frequently confused with poliomyelitis. There is urinary and fecal incontinency. The spinal fluid is characteristic, the protein being elevated to 365 mg. and there being a cell protein dissociation. In an 8 year old, 70 pound boy, Shaffer used 1 mg. of prostigmine, every fourth hour, for 4 doses, which is quite an intensive treatment.

While acetylcholine does not participate in the transmission of afferent impulses[5], pain is relieved, when due to muscle spasm. Facilitation and inhibition occur simultaneously[5], which fact is difficult to explain unless there is a selective ability by which the principle of reciprocal innervation is invoked.

In the nonallergic patient, the muscarinic qualities of acetylcholine are blocked with atropine. This is not sufficiently true in those persons sensitive to various allergens. Therefore, allergy is the one contraindication to the use of prostigmine. Asthma, urticaria, and vasomotor rhinitis would be aggravated, possibly dangerously.

Histamine is synergistic with acetylcholine in its effect on gastric secretion and pepsin. In sensitive subjects, it is a valuable test for parasympathicotonia, causing vasodilatation and reduction of blood pressure by as much as 50 mm.

Other drugs in the same general class can be just as readily evaluated against acetylcholine. Kuntz[6] has devised an excellent table wherein he classifies these drugs as acting on cells innervated by preganglionic or postganglionic nerves and those acting on the cells innervated by adrenergic nerves both as stimulants and depressants. A slightly different arrangement is perhaps more practical. Whereas prostigmine, by delaying hydrolysis of the choline ester, augments its complete

action, pilocarpine and muscarine strengthen the muscarinic action or cause salivation, perspiration, vomiting, flushing, asthmatic breathing, and tenesmus. Atropine, and to a lesser extent other alkaloids of belladonna, scopolamine, and hyoscyamine depress the muscarinic action of the acetylcholine. The adrenergic drugs, adrenin, ephedrine and benzedrine raise the blood pressure, shrink the mucosa, and slow peristalsis. Ergotoxine and ergotamine, by opposing the action of the adrenergic drugs, permit a recrudescence of acetylcholine effects. "Ergotoxine has been called, 'The atropine of the sympathetic,'" says Miller.[7]

Cannon[6] formulated a law which states in effect that increased irritability to chemical agents is elicited in isolated structures whenever any unit which is a member of a series of efferent neurons is destroyed; the effect—increased irritability—is maximal at whatever part has been denervated. This serves to explain the selective action in those neuromuscular dysfunctions wherein the innervation is impaired.

In the healing of wounds, Pokrovskaya and Makarov[2] found the presence of reticuloendothelial elements, macrophages, monocytes, polyblasts, and polymorphonuclear leukocytes to favor such healing. In another series of experiments, Leites and others[8] found that the presence of adrenergic substances delayed wound healing whereas, in wounds whose exudate gave a cholinergic response, healing proceeded rapidly. Such findings are further evidence that a synergism exists between the reticuloendothelial and parasympathetic nervous systems.

There is a temptation to compare heightened activity of the parasympathetics with stimulation of those endocrines which act in consonance with it (such as occurs in hypoglycemia, since in vagotonia a small amount of insulin excessively lowers blood sugar) and to contrast it with the endocrines acting in consonance with adrenergic dominance. Since no reports have appeared showing that prostigmine improves hyperthyroid state or substitutes for insulin, the speculation has only an academic interest. It does raise the question of whether manipulation can so release one or the other phase to the restoration of endocrine function.

Cortell, Feldman, and Gellhorn,[9] using rabbits for the study of choline esterase activity, came to the conclusion that eserine, when injected into animals, produces a reversible inhibition of choline esterase in vivo and a corresponding increase of the acetylcholine level, and they found further that neither anoxia, hypoglycemia, nor metrazol or strychnine convulsions altered the activity of either. In this paper, the authors cite conflicting findings of Nachmansohn[10] who reported ". . . that strychnine has a definite inhibitory action on ChE [choline esterase] acting in vitro experiments and he calculated that the quantity of strychnine used to produce convulsions in frogs is sufficiently high to produce ChE [choline esterase] inhibition in vivo although he did not perform any such experiments." Seeking further knowledge on the effects of prostigmine and acetylcholine on the central nervous system, Chatfield and Dempsey[11] used an electrocorticogram on anesthetized cats and found a series of changes in the electrocortical activity which were characteristic and which were absent when the substance was applied to the association areas and present in the auditory and motor cortex. They reasoned that acetylcholine, when potentiated by prostigmine, opened up pathways in the cortex which otherwise did not respond, and that the muscarinic and nicotinic qualities could be distinguished by the use of atropine. The effects were abolished by section of the thalamus. A phenomenon which apparently conflicts with observations of other writers but which, in reality, is consistent is that stimulation of peripheral nerves could still induce cortical tension after local treatment of the somesthetic cortex with prostigmine and acetylcholine, but the delineation was not as sharp. They conclude that prostigmine and acetylcholine induce changes in the central nervous system qualitatively similar to those which have been described in autonomic and neuromuscular systems and that the effects have been noted in fatigued neuromuscular systems.

Prostigmine is administered hypodermically as the methylsulfate in 1 mg. doses in a 1:2000 solution, that is, 2 cc. intramuscularly together with 1/150 of atropine daily, or orally, as the bromide in 5 mg. doses three times a day with or without atropine. While acetylcholine, as mecholyl, and prostigmine have been used advantageously in treating myasthenia gravis, their actions are slower if more prolonged, and they are not as well tolerated.

Acetylcholine portrays these qualities under laboratory conditions and prostigmine potentiates them. Where clinical conditions parallel laboratory conditions, such as those that fall in the class covered by Cannon's law, it can be confidently expected that prostigmine, by its ability to delay or inhibit the esterase, will be helpful. The reports that have appeared are unanimous in their commendation of its usefulness, but conversations with men who have used it indicate that its performance is not as universally good as its promise.

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EARLY RISING AFTER SURGICAL OPERATION

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Osteop. Internists Vol. 2, No. 1
February, 1947

Allergy—Diagnostic Considerations

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Because so many variables enter into skin testing, it should not be taken as a hard and fast laboratory procedure, but, rather, one that can shorten the time required to obtain relief for the patient. Variations arise even in technic, because the personality factors of the one doing the testing and, more important, the variation in the response of the patient are two unknowns which cause the answer to be anything but hard and fast. However, let me say that there have been enough truly dramatic results in my comparatively short time of using the tests to make me want to continue to discover just how far they can go in helping my patients.

Of all the testing materials available I have found the tubex[1] intradermal allergens are the simplest to use and the most reliable. In the beginning I worked with the scratch method, using paste allergens. These allergens are still in active use, and are especially good for a child who rebels at the needles. To use the scratch method in such cases lessens nervous strain on the child, mother, and doctor.

Of the cutaneous testing materials available, I like the paste type better than the powder, because it seems easier to keep in place. After making the scratches, it is sometimes necessary to wait a while before applying the allergens, because of dermographic reactions. That element is done away with in the intradermal testing.

The interpretations of the reactions (by the size of the wheal obtained), regardless of the method used, is the important factor. Any technician, who will take the time and care necessary, can give the tests, but that does not complete the task by any means. The size of the wheals should be read as 1, 2, 3, and 4 plus. The 1 plus is roughly twice the size of the negative control. The size of the wheal is a more important factor than the amount of erythema. If the wheal is appreciably larger than the negative control and shows definite edema (pallor), it may be recorded as 2 plus. A wheal with pseudopodia is termed a 2 plus or more, according to size.

The skin across the shoulders is the most responsive to the introduction of allergens. I like this site also because it affords a large enough region in which to compare the tests. The abdomen can be used, but, in the average patient, it is more sensitive and ticklish than the shoulders. The forearms and inner surfaces of the thighs may be used if one does only a few tests at a time.

I spoke of the tubex's[1] being more simple to use than some of the allergens. This is true. The multiplicity of syringes and the chore of either keeping a syringe for each particular allergen or doing a very thorough cleansing each time (boiling is not sufficient) are nuisances. A residuum of a previously injected solution may remain as a thin film within the syringe, contaminating the subsequently used extract and endangering the accuracy of the reaction. With the tubex method, the needle is washed with the new solution each time before being inserted under the skin.

To date, I have never had a systemic reaction from the testing material used. This, I understand, can happen if too strong dilutions are used.

The patch test, as used for tuberculosis, has a definite place, but continued regular use of testing for tuberculosis elicits a regular anaphylactic reaction after a while. Once a patient has given a positive reaction to the patch test, he will always react, so why keep on testing him? The reaction will only be worse each year.

As for food classifications, by long laboratory experimentation and clinical use, investigators have already determined what foods are closely related. This is a generic or botanical classification ordinarily. Group testing[2] saves a lot of time. When a group does not cause any reaction, one can be fairly sure that no individual member of that food group will cause a severe reaction. If the patient shows a reaction to a group, he should be tested for reactions to each member of that group, as not all foods in any certain classification will be offenders.

Since inheritance plays such a dominant part in predisposition to food allergy, being handed down as a Mendelian dominant characteristic, it is better to watch children of allergic parents, for prevention is worth more than all the treatment in the world. Once that tolerance threshold has been passed, it is impossible to ever restore it completely. Discourage the child's playing in shoulder high weeds; check him for sensitivity to dust and pollens before he goes to summer camp; have him pick a kind of work that does not cause him to contact those items, and give him diet instructions as to those foods which are most often offenders. Then moderation in all things should be the rule for this individual.

Even the Romans were familiar with food idiosyncrasies. "What is one man's meat is another's poison," said Lucretius, who was born 100 years before Christ. Eggs, wheat, and milk are the most common food allergens. Chocolate, potatoes, fish, pork, spices, the legumes, strawberries, and tomatoes are among the next most common. Looking at the *most common* list, one can easily see why we are having so much infantile eczema these days. I much prefer to give a little ferrous sulfate and mineral supplement to my younger patients rather than introduce egg early enough to break down that threshold. Thoroughly cooked foods are much less apt to produce symptoms than are the raw foods.

Positive skin tests for foods are always in line for proof—clinical proof—by diet. A positive skin test may point to past, present, or future sensitivity, and when the patient is tested 6 months hence, the reaction may vary. But if abstinence from the food will relieve the trouble and then eating it again will cause a recurrence, it is certainly a dramatic proof.

Elimination diets[3] are built on some one food that causes no reaction. The initial foods are chosen from those, such as rice, which are least likely to cause allergic reaction, and other foods are gradually added.

Milk alone is given by some clinicians, and, if symptoms continue, a milk-free diet is tried. It takes about 7 to 10 days to rid the system of all troublesome material, and this makes the test diet quite a problem to handle in the average case; however, after the skin tests have pointed the way, diagnosis should be confirmed by diet.

Conjunctival tests are indicated in patients who give a history of hay fever but in whom skin tests with pollen extracts are negative. A little raw pollen on the end of a toothpick is applied to the inner surface of the lower eyelid. A positive reaction is shown by redness and itching. Sensitivity to dogs, cats, and horses also can be demonstrated by this method, but scratch and then intradermal tests first should be proved negative.

Nasal tests consist of sniffing some of the allergens (pollen, animal dander, house dust, or orris root) into the nostrils. Vaughan[2] used a powder puff.

Contact dermatitis is frequent. Fur, newspaper printing ink (especially that used for the rotogravure section), and poison ivy are just a few items that are responsible, by contact, for trouble.

Eosinophils in the amount of 10 per cent or more, found by a cytological study of the discharges, is definitely diagnostic of an allergic manifestation. A hay fever sufferer can blow his nose into a piece of waxed paper. This material can then be placed on a slide evenly, and, when stained with Wright's, Giemsa's, or Hansel's polychrome stain, will show the presence of large numbers of the cells.

The determination of leukopenia can be used as a guide in the food allergy problem but, again, it is time consuming and difficult for the physician to carry out. After ingestion of a normal meal, the leukocyte count will rise. After ingestion of a meal containing allergens, the count will drop. The percentage of eosinophils may increase at the same time. To get the normal from which to work, check the count ½ hour before the meal is taken.

Pollen counts were first recorded in 1873. Coated glass slides are exposed for 24 hours. Differential pollen counts are made, and a definite ratio to the severity of symptoms can be established. Pollen is the equivalent of the animal sperm cell and varies in character in different parts of the world. Under the microscope, the grains appear much larger than red blood corpuscles. Molds, yeasts, smuts, and rusts, also known to excite attacks of asthma and rhinitis by inhalation, can be counted by the same procedure.

In closing, let me point out that the number of peop suffering from one or another type of allergic manifestation is on the increase, that the threshold to these different irritants is lower on the average, that prevention is an all important part of every doctor's duty, and that, if allergy is developed, elimination of the cause must be affected through every effort's being made.

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Seven out of every ten of us have vision defects—but at least 95 per cent of them can be corrected. . . Four conditions—near- and farsightedness, astigmatism and double vision—are responsible for 95 per cent of all eye trouble.—Conrad Berens, M.D., *Look*, April 30, 1946. *The Optometric Weekly*, June 13, 1946.

An Evaluation of Surgery in Carcinoma of the Lung

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In the past decade primary bronchogenic carcinoma has come forward to take its place as one of the great killers of mankind. We have all undoubtedly become more conscious of its presence in the recent years due to its increased occurrence which in turn has brought about a greater volume of literature on the subject in recent periodicals. As late as 1912 it was very infrequently diagnosed clinically but was seen frequently at the postmortem table. Since this time, physicians have not been so prone to dismiss mild chest symptoms without further investigation and, as a result, are uncovering more cancer of the lung before all hope is gone. Now it is second only to cancer of the stomach and is challenging its position. This increase is not only a relative one but a real one. It is unsettled as to whether inhalation of irritating fumes, smoking of tobacco, and the usual types of pneumoconiosis predispose to it. An interesting observation is that its rise has been simultaneous with the industrialization of the country, increase in tobacco sales, and abundance of automobiles. We do know that it occurs with greater frequency in miners of heavy metals, especially in the Schneeburg area of Germany.

The vast majority of patients with the disease are between 40 and 60 years of age and five times more men than women suffer from it. However, it must be realized that it may be encountered occasionally in patients between 20 and 40 and from 60 to 80 years old. A very high percentage of all cases occur in the bronchial tree proper—90 to 99 per cent. Any peripheral changes are secondary to mechanical obstruction and invasion, atelectasis and infection developing as a result.

Not so long ago, the physician had to depend upon history, physical findings, inadequate bacteriological studies, and sputum analyses. With such diagnostic facilities, conclusive proof was late. It was this state of affairs that led the layman and profession alike to accept a most hopeless attitude. With present day improvements and increased availability of fluoroscopy and x-ray, earlier diagnoses by deduction has become a reality. If suspicions are aroused by x-ray or laboratory findings, the next procedure is that of bronchoscopy. With the perfection and popularization of its use, the actual inspection of the bronchial tree has become a reality. At last we are actually able to inspect and see cancer of the lung. In some instances, small tumors are removed through the bronchoscope and radium is implanted with some cures obtained. Sixty to 70 per cent of the bronchogenic carcinomas originating in major bronchi are accessible to the bronchoscope, and a specimen to establish diagnosis can be obtained. If the biopsy is positive, the patient should be explored at once, provided there is no clinical evidence of metastasis. If bronchoscopy is negative, a bronchogram should be done to demonstrate any obstructive lesion beyond the reach of the scope. There should be no more apprehension at referring a patient for thoracic exploration than abdominal. It can be performed by modern day technic with little risk. Its importance is

shown in the 153 cases mentioned later, in which the diagnosis was established by exploration in 24 per cent of them. It is this procedure which gives the most valuable information for outlining treatment. It is possible to determine the amount of metastasis that has taken place either through the lymphatic system (in which case the lymph nodes over the arch of the aorta and along its thoracic course will be enlarged and hardened), or there may be metastasis to the pleura or thoracic wall itself. In either case, the hopelessness of the condition will be confirmed. If no metastasis is discovered but there is evidence of a lesion, whatever surgical treatment may seem advisable, lobectomy or pneumonectomy should be undertaken. Aspiration biopsy should be used only in cases that are obviously inoperable because of spread of tumor cells to uncontaminated tissue. Exploration is considered the much safer procedure. With these improved facilities earlier diagnosis has become a possibility and our percentage of cures greater.

I find that the symptoms are those of any chronic chest condition, such as cough, chest pain, chills, fever, hemoptysis, dyspnea, weight loss, and weakness. Important to notice is the fact that, in an exceedingly high per cent of cases, there has been a very early symptom which pointed toward the chest—chronic cough being the most common with pain, chills, fever, and hemoptysis following in that order.

The influenza syndrome is a common occurrence. The patient will tell of having had influenza and not getting over it just as he should have. What actually happened was that he had an area of atelectasis, behind the obstruction, which became infected and responded to chemical therapy but never reexpanded.

It is already evident that the success of surgical intervention depends entirely upon an early diagnosis. Although physical diagnosis has lost some of its importance in the last few years, it is still the method by which the very earliest symptoms may be uncovered. Many times the discovery of a minimal physical sign will lead to an early diagnosis and cure of cancer of the lung. If one will remember that the fault lies not in the physical examination itself but in the examiner and will follow the most minute of physical symptoms to their termination, more early diagnoses of cancer of the lung will be made.

Such care in examinations has increased the possibility of an early diagnosis which is the only hope the patient has of an arrestment or cure of the disease. Without this, the surgeon's hands are tied.

With the advent of microfilm, which has reduced the cost per person to 2 or 3 cents, mass surveys have become practical, and the acceptance of chest films as a routine procedure for hospital admittance is becoming much more common. The preadmittance chest film has proved to be the most important single routine procedure, uncovering more serious pathology than any other. Routine blood cell counts reveal blood dycrasias in a small fraction of 1 per cent; routine urinalysis reveals disorders in .4 per cent; while x-ray reveals pathology in 8 to 10 per cent of those examined. To further emphasize the value of this procedure, consider that a review of 198 cases in 1904 revealed that in only 6 per cent was the correct clinical diagnosis made. In the last 10 years these figures have been reversed, but, with all this, we are still confronted with these facts: Less than 25 per cent of cancers are diagnosed before metastasis has taken place. In a series of 153 cases it was shown that 60 per cent were not only incorrectly diagnosed, but that unsuitable treatment was maintained for a long period of time—time which doomed the patient. The various conditions for which they were treated were as follows: Tuberculosis, 35; unresolved pneumonia, 15; lung abscess, 13; bronchitis, 10; asthma, 5; cardiac conditions, 4; pleurisy, 4; metastatic lesions, 2, and miscellaneous, 7. The average patient did not see a doctor for 3 months. There was a delay of 3¼ months before the first x-ray was ordered. These previous weeks, added to the time of the average patient lost in seeking advice, accounted for ½ year, and 5¾ months passed after the first x-ray before correct diagnosis was made. With these facts in mind, it becomes increasingly evident that the responsibility for the early diagnosis of this disease rests largely on the shoulders of the general practitioner and internist, who will undoubtedly be the first to see the patient.

With the development of the new diagnostic procedures and the further understanding of early symptoms, early diagnosis has not only become more prevalent, but has become the necessary step to make surgery a reasonable treatment. Up to 1933, surgery had gradually developed to the point where, with early diagnosis, it could actually create an arrest or cure of the disease. The first attempts at lobectomy or pneumonectomy were carried out in Germany, the patients expiring in all cases. Later attempts were made in this country by John Alexander of Ann Arbor, Archibald of Toronto, and many others. In 1933, Everett Graham of St. Louis performed the first successful premeditated and planned pneumonectomy after which the patient lived.

One great obstacle still unsolved was that of empyema following surgery. This complication accounted for many postoperative deaths. With the discovery and development of the sulfa drugs and later, penicillin, this obstacle was at last overcome and the unlimited use of surgical treatment in cancer of the lung became possible.

At the present time the mortality rate is below 5 per cent. The majority of deaths occur in patients advanced in years and often in poor physical condition. The salvage rate is about 12 per cent. These patients have lived an enjoyable and useful life and some are in their tenth postoperative year. As the years go by, it will become possible to compare the salvage rate in cancer of the lung with that of cancer of other internal organs. At present, it is at least as hopeful as that in cancer of other viscera. Reports on cancer of the stomach place the salvage rate after 5 years at 5 to 6 per cent. Because of the vagueness of symptoms and the advanced stage the disease has reached before the patient seeks a doctor, there has been little or no improvement in this rate. With the restricted bronchial tube making it impossible for the disease to progress very far before the patient has some alarming symptoms and our better understanding of early symptoms, it is felt that in cancer of the lung the salvage rate can be raised considerably.

In closing, I wish to emphasize the following facts:

1. The great value of mass x-ray surveys
2. Serious intrathoracic lesions are great masqueraders
3. Physical diagnosis is still the means by which earliest symptoms may be uncovered
4. Surgical exploration is a relatively safe procedure.

14341 W. McNichols Rd.

DEPARTMENT OF PUBLIC RELATIONS

(Continued from page 348)

Basic salaries of technicians range from $2,168 to $2,394, depending on experience. For the higher basic salary, applicants must have experience or schooling in the operation of the electroencephalograph.

However, experience in any of the following fields may be substituted in part for experience in the operation of the electroencephalograph: In a hospital as an attendant; in student, practical or graduate nursing; in active Army or Navy service of a medical nature; in a clinical or medical laboratory, or in college classes for the physical sciences.

Physicians interested in becoming associated with VA to train for this work may be detailed immediately to the training course.

Applicants should apply at the nearest VA office.

The electroencephalography program is one of three nation-wide neurological programs now underway in VA to implement existing specialties in the neuropsychiatry department. Other programs are in aphasia and epilepsy.

APPOINTMENT OF U. S. PUBLIC HEALTH SERVICE MEDICAL OFFICERS

On January 10, 1947, announcement was made of a competitive examination for appointment in the Regular Corps in the grades of Assistant Surgeon (1st Lieutenant) and Senior Assistant Surgeon (Captain).

Regular Corps appointments are permanent in nature and provide opportunities to qualified doctors for a life career in one or more of a large number of fields including research, general hospitals, special hospitals, foreign duty, and federal, state, and local public health programs. Assignments are made with all possible consideration of the officer's demonstrated abilities and experience. There is ample opportunity for professional growth and development.

All applicants must be at least 21 years of age, must be citizens of the United States, must present a diploma of graduation from a recognized medical school, and must satisfactorily pass a physical examination performed by Public Health Service officers when directed upon successful completion of the oral and written examination.

Applicants for the grade of Assistant Surgeon must have had at least 7 years of educational and professional training or experience exclusive of high school.

Applicants for the grade of Senior Assistant Surgeon must have had at least 11 years of educational and professional training or experience exclusive of high school.

Application forms may be obtained by writing to the Surgeon General, U. S. Public Health Service, Washington 25, D. C. These should be retained and presented to the Board at the time the applicant appears for the oral examination.

Entrance pay for Assistant Surgeon with dependents is $3811 a year and for Senior Assistant Surgeon with dependents is $4351 a year. Promotions are at regular intervals up to and including the grade of Medical Director which corresponds to full Colonel at $8551 a year. Retirement pay at 64 is $4950 a year. Full medical care including disability retirement at three-fourth's pay is provided. All expenses of official travel are paid by the Government. Thirty days' annual leave with pay is provided. All commissioned officers have full military status for the duration of the war emergency period.

Examinations will be oral and written. The oral examination will be held at the several places listed below on the dates shown. The written examinations will be held at 9:00 a.m. on March 27 and 28 at places convenient to the candidate and the Service. National Board grades may be used in place of the written examination for the Assistant Surgeon grade.

Places and dates of oral examinations:

Atlanta, Ga.
Communicable Disease Center, 605 Volunteer Bldg.....10 AM Feb. 4
Baltimore, Md.
Marine Hosp., Wyman Pk. Drive & 31st St.....10 AM Mar. 4
Boston, Mass.
Marine Hosp., 77 Warren Street (Brighton).....10 AM Mar. 8
Buffalo, N. Y.
Marine Hosp., 2183 Main St.....9 AM Mar. 10
Chicago, Ill.
Marine Hosp., 4141 Clarendon Avenue.....10 AM Feb. 21
Cincinnati, Ohio
Univ. of Cincinnati, School of Medicine.....9 AM Mar. 12
Cleveland, Ohio
Marine Hosp., Fairhill Rd. & E. 124th St.....9 AM Mar. 11
Denver, Colo.
Univ. of Colorado School of Medicine.....10 AM Feb. 18
Durham, N. C.
Duke Univ. School of Medicine.....10 AM Feb. 26
Galveston, Texas
Marine Hosp., 45th St. & Avenue N.....3 PM Feb. 6
Houston, Texas
Baylor Univ. School of Medicine.....10:30 AM Feb. 6
Los Angeles, Calif.
USPHS Relief Sta., 406 Federal Bldg.....9 AM Feb. 10
Minneapolis, Minn.
Univ. of Minn. School of Medicine.....10 AM Feb. 20
Memphis, Tennessee
Marine Hosp., Delaware & Calif. Sts.....9 AM Mar. 14
New Orleans, La.
Marine Hosp., 210 State St.....9 AM Feb. 5
New York, N. Y.
USPHS Dist. No. 1, 15 Pine St.....10 AM Mar. 6
Norfolk, Va.
Marine Hosp., Hampton Blvd.—Larchmont.....10 AM Feb. 25
Omaha, Nebraska
Univ. of Nebraska School of Medicine.....10 AM Feb. 19
Philadelphia, Pa.
Univ. of Pennsylvania School of Medicine.....10 AM Mar. 5
St. Louis, Mo.
Washington Univ. School of Medicine.....10 AM Mar. 13
Stapleton, Staten Island, N. Y.
Marine Hospital .....10 AM Mar. 7
Salt Lake City, Utah
Univ. of Utah School of Medicine.....1 PM Feb. 17
San Francisco, Calif.
Marine Hosp., 14th Ave. & Park Blvd.....9 AM Feb. 11, 12
Seattle, Washington
Marine Hosp., Judkins St. & 14th Ave., So.....9 AM Feb. 14
Washington, D. C.
USPHS Headquarters .....9 AM Mar. 17

MORTALITY RATES IN 1945 AND PRECEDING YEARS

Fewer deaths occurred in the United States in 1945 than in either of the 2 preceding war years, according to figures released by the U. S. Public Health Service. A total of 1,401,719 deaths were reported in the United States in 1945, as compared with 1,411,338 in 1944, 1,459,544 in 1943 and 1,385,187 in 1942.

In the first 10 months of 1946 there were an estimated 1,162,000 deaths in the United States, as compared with 1,144,273 in the first 10 months of 1945. All figures are for the continental United States and exclude deaths among the armed forces overseas.

Deaths from the major infectious diseases declined to new lows in 1945. The year set a record low for pneumonia and influenza. The total of 68,386 deaths from these respiratory causes was 8.2 per cent less than the previous minimum of 74,532 deaths in 1942 and 16.4 per cent less than the number reported for 1944.

Heart disease, cancer, and intracranial lesions strengthened their positions at the head of the list of leading causes of death. Heart disease deaths accounted for 30.3 per cent of the reported deaths in 1945 as compared with 29.6 in 1944. Cancer, the second leading cause of death, claimed 12.7 per cent of the total as compared with 12.1 in 1944. The third leading cause of death, intracranial lesions of vascular origin, was responsible for 9.2 per cent of all deaths in 1945 as compared with 8.8 per cent in 1944.

An increase in motor vehicle accident deaths from 24,282 in 1944 to 28,076 in 1945 overbalanced a decrease of 3,113 in the number of deaths from other accidental causes. All accidental causes accounted for 95,918 deaths in 1945 as compared with 95,237 in 1944. The greater part of the increase in the motor vehicle accident death rate occurred in the second half of 1945 after gasoline rationing ended.

The ten causes of death which are found in the lead in 1945 are those which headed the list in the pre-war period 1939-1941. With the exception of motor vehicle accidents, the ten causes rank in 1945 in the same order of importance as in the period 1939-1941. Due chiefly to wartime restrictions on driving, motor vehicle accidents dropped from eighth place as the cause of death in 1939-1941 to tenth place in 1942.

Department of Professional Affairs

BENJAMIN F. ADAMS, D.O.
Chairman
West Hartford, Conn.

BUREAU OF PROFESSIONAL EDUCATION AND COLLEGES

R. McFARLANE TILLEY, D.O.
Chairman
Brooklyn, N. Y.

KIRKSVILLE REQUIREMENTS UP AND FEES RAISED

M. D. Warner, Dean, Kirksville College of Osteopathy and Surgery, has announced that the requirements for admission to the school now include 6 semester hours in organic chemistry. He also announced that the matriculation and tuition fees have been raised to $25 and $450 respectively.

ANALYSIS OF FRESHMEN CLASSES IN FALL OF 1946

The following analysis of the entering freshmen in the six osteopathic colleges shows in what preprofessional colleges they received their training. Vocational guidance chairmen of the divisional societies are asked to study this analysis. The table is not a geographical breakdown of residences of our entering freshmen; some students living in one state attended preprofessional colleges in other states. The analysis does show, however, with what colleges our vocational guidance representatives should keep in close contact. A similar analysis will be made of the new freshmen who will enter the Des Moines, Kirksville, Chicago, and Kansas City colleges in February and March, 1947. The Los Angeles and Philadelphia colleges do not have new classes until September.

LAWRENCE W. MILLS
Vocational Director

STATES AND COLLEGES		CCO	COPS	DMS	KC	KCOS	PCO	TOTAL
ALABAMA								
Birmingham Southern College			1					1
University of Alabama			1					1
	Total		2					2
ARKANSAS								
Arkansas A & M College						1		1
University of Arkansas			2					2
	Total		2			1		3
CALIFORNIA								
Compton Junior College			1	1				2
Fresno State College			3					3
Glendale Junior College			2					2
La Sierra College					2			2
Los Angeles City College			12					12
Loyola University of Los Angeles			1					1
Mount St. Mary's College				1				1
Occidental College			1					1
Pacific Union College			3				1	4
Pasadena Junior College			3					3
Pomona College			3					3
San Bernadino Valley Junior College			1					1
San Diego State College			2					2
Santa Monica Junior College				1				1
Taft Junior College			1					1
University of California			2					2
University of California, Los Angeles			4					4
University of San Francisco				1				1
University of Southern California			4		1	1		6
Whittier College			1					1
	Total		44	4	3	1	1	53
CONNECTICUT								
St. Thomas College							1	1
University of Connecticut							1	1
	Total						2	2
COLORADO								
Mesa Junior College			1					1
University of Colorado			1					1
University of Denver						1		1
	Total		2			1		3
DISTRICT OF COLUMBIA								
Georgetown University							1	1
	Total						1	1
DELAWARE								
University of Delaware							1	2
	Total				1		1	2
GEORGIA								
Emory University						1		1
	Total					1		1
IDAHO								
University of Idaho			1					1
	Total		1					1
ILLINOIS								
Central Y.M.C.A. College			1					1
Crane Junior College			1					1
Greenville College				1				1
Illinois Wesleyan University						1		1
Knox College						1		1
Roosevelt College		1						1
University of Illinois		3		1		1		5
	Total	4	2	2		3		11
INDIANA								
De Pauw University		1						1
Indiana State Teachers College		1				1		2
Indiana University						1		1
Notre Dame University		1	1					2
	Total	3	1			2		6
IOWA								
Drake University			1	5				5
Emmetsburg Junior College					1			1
Iowa State College		1						1
Iowa Wesleyan College				3		1		4
Simpson College				1		1		2
State University of Iowa			1	2				3
	Total	1	2	10	1	2		16
KANSAS								
Fort Scott Junior College					1			1
Kansas Wesleyan University					1			1
Southwestern College					1			1
University of Kansas			1					1
University of Wichita					1			1
	Total		1		4			5
KENTUCKY								
Western Kentucky State Teachers				1			1	2
							1	2
	Total			1			1	2
LOUISIANA								
Southern University and A & M			1					1
Tulane University		1	1		1			3
	Total	1	2		1			4
MAINE								
Colby College							1	1
	Total						1	1
MARYLAND								
University of Maryland				1				1
	Total			1				1
MASSACHUSETTS								
Boston College							2	2
College of the Holy Cross					1			1
Eastern Nazarene College						1		1
Massachusetts State College			1	1				2
Middlesex University			1	1				2
Springfield College		1						1
	Total	1	2	2	1	1	2	9
MICHIGAN								
Detroit Institute of Technology				1				1
Grand Rapids Junior College					1			1
Michigan State College				2		2		4
Michigan State Normal		1						1
University of Detroit		1	1	2		1		5
University of Michigan			1	3		1		5
Wayne University				3			2	5
	Total	2	2	11	1	4	2	22
MINNESOTA								
Carleton College			1					1
Gustavus Adolphus College			1					1
Itasca Junior College					1			1
University of Minnesota							1	1
	Total		2		1		1	1
MISSOURI								
Culver Stockton College					2			2
Kansas City (Mo.) Junior College					1			1
Lindenwood College					1			1

STATES AND COLLEGES	CCO	COPS	DMS	KC	KCOS	PCO	TOTAL
Moberly Junior College				1			1
N. E. Missouri State Teachers College				4	12		16
Park College				1			1
S. W. Missouri State Teachers College				1			1
University of Missouri				1	4		5
Washington University	1						1
William Jewel College				1			1
Total	1			13	16		30
NEBRASKA							
Nebraska State Teachers College		1			1		2
							2
Total		1			1		2
NEW JERSEY							
Rutgers University						1	1
St. Peters College			1				1
Total			1			1	2
NEW MEXICO							
New Mexico College of A & M Arts				2			2
Total				2			2
NEW YORK							
Brooklyn College		1	1				2
City College of New York	1				1		2
Columbia College of Pharmacy						1	1
Cornell University		1			1	1	3
Fordham University			1				1
Long Island University	2	1				1	4
New York University	3	2				5	10
Queens College						2	2
St. Bonaventure College	1						1
St. John's University			1				1
University of Buffalo						1	1
Wagner College	1					1	2
Total	8	5	3		2	12	30
NORTH CAROLINA							
Duke University						1	1
Total						1	1
NORTH DAKOTA							
N. D. State Teachers College			1				1
Total			1				1
OHIO							
Adelbert College					1		1
Bowling Green State University	1						1
Muskingum College				1			1
Ohio Northern University				1			1
Ohio State University			1				1
Ohio University					1		1
Ohio Wesleyan University						1	1
University of Dayton						1	1
University of Toledo			1				1
Western Reserve University				1			1
Wilmington College					1		1
Youngstown College			1		1		2
Total	1		3	3	4	2	13
OKLAHOMA							
Northwestern State College		1					1
Phillips University				2	1		3
University of Oklahoma	1	1					2
Total	1	2		2	1		6
PENNSYLVANIA							
Allegheny College					1		1
Bucknell University					2	1	3
Chestnut Hill College						1	1
E. Stroudsburg Teachers College				1			1
Franklin and Marshall College						2	2
Geneva College			1				1
Gettysburg College						1	1
Haverford College						1	1
La Salle College						1	1
Lebanon Valley College						1	1
Muhlenberg College						1	1
Penn State College		1	1			3	5
Philadelphia College of Pharmacy and Science		1				5	6
Susquehanna College						1	1
Temple University			1		1	14	16
Thiel College					1		1
University of Pennsylvania					1	9	10
University of Pittsburgh					1		1
University of Scranton						1	1
Ursinus College						4	4
Villanova College			2			3	5
Total		2	5	1	7	49	64
RHODE ISLAND							
Rhode Island State College						1	1
Total						1	1
SOUTH DAKOTA							
South Dakota State College			1				1
University of South Dakota			1				1
Total			2				2

STATES, CANADA AND COLLEGES	CCO	COPS	DMS	KC	KCOS	PCO	TOTAL
TENNESSEE							
Madison College				1			1
Milligan College			1				1
Siena College						1	1
Total			1	1		1	3
TEXAS							
East Texas State Teachers College				1	1		2
North Texas State Teachers College					1		1
Rice Institute		1					1
St. Mary's University of San Antonio		1					1
Southern Methodist University					1		1
University of Texas					2		2
Total		2		1	5		8
VIRGINIA							
Medical College of Virginia					1		1
University of Virginia				1			1
Total				1	1		2
WASHINGTON							
College of Puget Sound		1					1
Seattle College		1					1
University of Washington		1					1
Walla Walla College		1					1
Total		4					4
WEST VIRGINIA							
Concord College					1		1
West Virginia Institute of Technology			3				3
Total			3		1		4
WISCONSIN							
Carroll College			1				1
Lawrence College			1				1
University of Wisconsin					1		1
Total			2		1		3
CANADA							
Agricultural College, Ontario		1					1
Loyola University, Montreal			1				1
University of British Columbia			1				1
Victoria College, Victoria, B. C					1		1
Total	1	2			1		4
Grand Total	24	83	53	36	56	79	331

NUMBER OF PREPROFESSIONAL COLLEGES BY STATES PROVIDING FRESHMEN IN THE FALL CLASSES OF 1946

State	Number of Colleges	Number of Freshmen
Pennsylvania	21	64
California	20	53
Missouri	10	30
New York	12	30
Michigan	7	22
Iowa	6	16
Ohio	12	13
Illinois	7	11
Massachusetts	6	9
Texas	6	8
Indiana	4	6
Oklahoma	3	6
Kansas	5	5

4 Students: Louisiana, Minnesota, Washington, West Virginia, Canada.

3 Students: Arkansas, Colorado, Tennessee, Wisconsin.

2 Students: Alabama, Connecticut, Delaware, Kentucky, Nebraska, New Jersey, New Mexico, South Dakota, Virginia.

1 Student: District of Columbia, Georgia, Idaho, Maine, Maryland, North Carolina, North Dakota, Rhode Island.

LEADING PREPROFESSIONAL COLLEGES

College	Number of Students
Temple University, Pennsylvania	16
Northeast Missouri State Teachers, Missouri	16
Los Angeles City College, California	12
New York University, New York	10
University of Pennsylvania, Pennsylvania	10
University of Southern California, California	6
Philadelphia College of Pharmacy, Pennsylvania	6
University of Michigan, Michigan	5
Villanova College, Pennsylvania	5

University of Illinois, Illinois	5
Drake University, Iowa	5
Wayne University, Michigan	5
University of Detroit, Michigan	5
University of Missouri, Missouri	5
Penn State College, Pennsylvania	5
Pacific Union College, California	4
University of California, L. A., California	4
Iowa Wesleyan College, Iowa	4
Michigan State College, Michigan	4
Long Island University, New York	4
Ursinus College, Pennsylvania	4

ADVISORY BOARD FOR OSTEOPATHIC SPECIALISTS

LOUIS C. CHANDLER, D.O.
Chairman
Los Angeles

SPECIALTY CERTIFICATION APPEAL COMMITTEE APPROVED

The Advisory Board for Osteopathic Specialists wishes to call attention of any who may be concerned to the action of the Board of Trustees of the American Osteopathic Association which authorizes the appointment of an Appeal Committee within the Advisory Board.

Any applicant for specialty certification who feels that any specialty certifying board has unjustifiably withheld favorable action on his case may petition the Advisory Board for a hearing and investigation of his dissatisfaction with the specialty board's action.

The Advisory Board knows of cases in which applicants have failed properly to present their qualifications as well as instances of specialty boards' examinations having been misunderstood. It is believed that through the agency of the Appeal Committee misunderstanding and inadverent inequities can be corrected.

LOUIS C. CHANDLER, D.O.

SPECIALTY BOARD EXAMINATIONS

American Osteopathic Board of Neurology and Psychiatry.—Examinations will be held in Chicago just before the Annual Meeting of the American Osteopathic Association, July 21-25. Applications must be filed 60 days prior to that date. Address the secretary, Thomas J. Meyers, D.O., 420 Security Bldg., Pasadena 1, Cal.

American Osteopathic Board of Ophthalmology and Otolaryngology.—Examinations will be held in Detroit one week preceding the Annual Convention of the American Osteopathic Association, July 21-25. Applications must be filed 60 days prior to that date. Address the secretary, T. J. Ruddy, D.O., 907 Pellissier Bldg., Los Angeles 36.

American Osteopathic Board of Pediatrics.—Examinations will be held in Chicago July 19, 9 to 12 A.M. Applications must be filed by May 15. Address the secretary, Dorothy Connet, D.O., Kirksville College of Osteopathy and Surgery, Kirksville, Mo.

American Osteopathic Board of Radiology.—Examinations will be held in Chicago at the time of the Annual Meeting of the American Osteopathic Association, July 21-25. Applications must be filed 90 days previous to the date of examination. Address C. A. Tedrick, D.O., 1550 Lincoln St., Denver 5, Colo.

American Osteopathic Board of Surgery.—Application blanks and informative data are now ready for distribution. Members planning to make application as surgical specialists should direct communication to the secretary, Orel F. Martin, D.O., P.O. Box 263, Coral Gables 34, Fla.

CORRECTION

In the table of contents for the Surgery Supplement, December, 1946, JOURNAL, page 258, Dr. F. C. True was erroneously listed as having a Fellowship degree in the American College of Osteopathic Surgeons. The editorial staff of THE JOURNAL takes full blame for this error. Dr. True had not used the degree F.A.C.O.S. on his original manuscript.

COMMITTEE ON SPECIAL MEMBERSHIP EFFORT

STEPHEN B. GIBBS, D.O.
Chairman
Coral Gables, Florida

MEMBERSHIP REPORT AS OF JANUARY 1

The membership count January 1, 1947 was 7,703. This is a loss of 195 over the membership count Dec. 1, 1946. There were six deaths and seven resignations during December. Two-hundred eighty-four members were dropped on Jan. 1 for non-payment of dues. Since there were 102 new names added to the membership list during December, the loss through non-payment of dues was somewhat minimized. We cannot help figuring what might have been had everyone paid his dues. Our total membership count would have been 7,987.

There is some consolation in these figures, as they are considerably better than those of Jan. 1, 1946. Our total then was 7,437 as compared to 7,703—a gain of 296. The non-membership count a year ago was 3,685 as compared to 3,496 this year—189 fewer nonmembers. Three hundred two were dropped for non-payment of dues last year as compared to 284 this year. The loss was 18 less than a year ago.

We are expecting a large portion of those who were dropped to be restored to membership within the next few weeks. It is regrettable that the excellent results of the membership work must take this set back every year.

We must try to get everyone of those who were dropped from membership back where he belongs and keep our goal of 8,300 by June 1, 1947, a possibility. Everyone please help.

S. B. G.

8,300 by June, 1947.

HONOR ROLL

Dr. C. H. Baker	Dr. Reginald Platt
Dr. Harry A. Barquist	Dr. Walter H. Siehl
Dr. Dorothy J. Marsh	Dr. Eva M. Magoon Somerville

Department of Public Affairs

WAYNE DOOLEY, D.O.
Chairman
Los Angeles

BUREAU OF LEGISLATION

H. DALE PEARSON, D.O.
Chairman
Erie, Pa.

DEATH OF PATIENT IS NOT PROOF OF MALPRACTICE

A 10 year old patient died a few hours after a doctor had performed a tonsillectomy upon her. Plaintiffs, the father and mother of the deceased child, alleging malpractice, sued the defendant doctor and the hospital in which the operation was performed. The only witness at the trial was the mother of the deceased. At the end of her testimony, the defendants moved for a directed verdict in their favor. These motions were sustained. On appeal, the plaintiffs contended that the court erred in sustaining the motions and stated:

In support of this assignment, they place themselves upon the doctrine of "res ipsa loquitur," saying, "It is a matter of common knowledge that death does not ordinarily result from a tonsillectomy. Yet, Evelyn Sanders died shortly after a tonsillectomy was performed on her. Why she did so, neither we nor appellants know. We submit that her parents are entitled to an explanation. And that the court erred in excusing appellants from making such explanation." *Sanders et ux v. Smith et al.*, (1946), 27 So. 2d 889 at p. 891.

The appeal court sustained the finding of the lower court saying:

"Res ipsa loquitur means that the facts of the occurrence warrant the inference of negligence; not that they compel such an inference, but that they furnish circumstantial evidence of negligence where direct evidence of it may be lacking." (*Supra*, p. 891)

The court pointed out that:

In the case at bar, it is to be noted that there is no proof in the record, whatever, to show lack of such degree of learning and skill in appellants, or that the stated degree of care was not used in this case. (*Supra*, p. 891)

Finally, the court emphasized that the doctrine of res ipsa loquitur should be applied cautiously, and concluded:

We think, that the test, generally, is not that the result of the operation was unusual and unexpected, or even fatal, alone and by itself, because, without an abnormal and rare end to operation, there would not exist an occasion for an action in damages from it. The real question, generally, is whether or not in the process of the

operation any extraordinary incident or unusual event, outside of the routine of the action of its performance, occurred, and beyond the regular scope of its customary professional activity in such operations, which, if unexplained, would themselves reasonably speak to the average man as the negligent cause or causes of the untoward consequence. If there were such extraneous interventions, then the doctrine of res ipsa loquitur would be applicable to call upon the defendant to explain the matter, by evidence of exculpation, if he could. The jury would then decide the issue of fact in the case." (*Supra*, p. 892 and 893)

COMMITTEE ON HEALTH INSURANCE

A. W. BAILEY, D.O.
Chairman
Schenectady, N. Y.

OSTEOPATHIC PHYSICIANS AND COLORADO MEDICAL SERVICE

The Colorado Osteopathic Association announces that a working agreement has been made with Colorado Medical Service, Inc., under which the members of the Association will cooperate in this medical service plan.

Colorado Medical Service, Inc., which issues agreements for surgical service, will remunerate osteopathic physicians and surgeons for services provided under terms of the contract on the same basis as other participating professional members under this plan are paid.

Division of Public and Professional Welfare

THOMAS R. THORBURN, D.O.
Chairman
New York City

PUBLIC RELATIONS ASPECTS OF HOSPITALS*

HARVE LAMONT SMITH, Public Relations Counselor
Michigan Association of Osteopathic Physicians and Surgeons
Highland Park, Mich.

Osteopathic hospitals throughout the country are suffering from growing pains. Present facilities of most of them are taxed to the utmost. More beds and more equipment are needed. Most of them have plans for expansion now or in the future. Some speak of launching a financial campaign a few months hence and simultaneously, as a part of that effort, "a publicity campaign" through the local newspapers. To many hospitals, an effort of this nature represents their limited concept of hospital public relations. Others lightly dispose of public relations with such remarks from staff members as "If it's going to cost anything, we can't afford it"; or "I have a patient who's a reporter on the newspaper and he will print anything we want"; or "Yes, we will need public relations when we start our campaign."

This is evidence of almost total misunderstanding of the meaning, the application, the timing and significance of a sound, coordinated program of public relations to the development of a hospital. It embraces vastly more than publicity—more than how often the name of the hospital appears in print—more than the total of newspaper column inches filed in a scrapbook.

The object of any program of public relations should be *to protect and promote* the interests of the institution, organization or individual, through the cultivation of favorable public opinion.

In 1945 American railroads, airlines, industry, business, government and various enterprises spent an estimated sixty-five million dollars for professional counsel *to protect and promote* public understanding and goodwill.

What are the osteopathic hospitals doing? What have they at stake?

In the approved and registered osteopathic hospitals throughout the nation there are 4,987 hospital beds. The Chairman of the Committee on Hospital Inspection for the American Osteopathic Association, J. Paul Leonard, estimates that the gross revenue of these hospitals is between eighteen and nineteen million dollars a year! That is big business. It is obvious that steps should be taken to protect and promote these interests.

*Presented before the Divisional Society Conference, Chicago, February 2, 1946.

Hospitals should keep uppermost in mind that what John Public thinks of the D.O. and his hospital is all-important, since *he* is the man who pays the bills. Directly or indirectly *he* pays for the hospital building, which is the doctor's workshop, *he* pays for its equipment, staff and maintenance. From John Public comes the money which pays for the doctor's home, his automobile, his children's education and the family vacations. Upon public opinion depends the future expansion of our hospitals and legislation which will affect their operation. Therefore, to protect and promote by various ways, through cultivation of the goodwill of John Public is good business. Yet to many hospitals, John Public is the Forgotten Man.

Because it is one of the most frequently encountered and one of the most frequently bungled aspects of hospital public relations, let us consider hospital public relations to precede a financial campaign. First, I wish to make it crystal clear that I am not in the business of raising money, nor does the public relations service of our Michigan Association extend to financial campaigns for hospitals. Nevertheless, the reason for the failure of many hospital campaigns to reach their goal is too obvious to ignore. It is because the hospitals do not or will not properly prepare themselves for an approach to the public through a sound program of public relations carried on for several months prior to a financial campaign. The need for this is elementary, but the pattern of procedure of hospitals, with some notable exceptions, remains the same. The need for more beds and more equipment is generally acknowledged by staff and board members; something must be done about it. Tentative plans and cost estimates for an addition are obtained. It is decided that a campaign will be launched. It is estimated that the profession will subscribe so much; the balance must come from the public.

Professional campaign counsel may or may not be retained. In any event, there is the search for a suitable general chairman—a prominent layman. Printed matter is prepared. The newspapers carry a story of the proposed expansion plans, and later, a story announcing the campaign, the dates and the goal, with a photograph of the general chairman. About that time there is a realization of the difficulty of lining up an active campaign committee and campaign workers, to say nothing of interested live prospects. Eventually, when industry and wealthy individuals are solicited by mail or otherwise, they are unresponsive, because they had not been educated nor cultivated in advance. Many knew little about osteopathy or about the hospital, and the hospital appeal was in competition with many popular, established charities bidding for the gift dollar.

STEPS TO BE TAKEN TO PREPARE THE PUBLIC

First, bear in mind that there are numerous public relations essentials to the success of a hospital financial campaign.

(1) The program must have the united, enthusiastic support of the staff. The staff must show its faith by subscribing its full fair share before the public is asked to subscribe.

(2) There should be several months of advance preparation and pre-campaign education.

(3) There should be hospital inspection tours by groups and individuals.

(4) There should be a clearly defined, saleable program which *justifies* community support. Such a program should be submitted, with your intentions, to your local Chamber of Commerce secretary for campaign approval.

(5) Is the hospital giving any free public health service? Consideration might be given to the establishment of a full- or part-time diagnostic or therapeutic clinic for the needy.

(6) Influential laymen should be serving on your Board of Trustees.

(7) Representative leadership should be sought out, educated, and cultivated for service on the Advisory Campaign Committee and Special Gifts Committee.

(8) Strong endorsements should be obtained.

(9) Sales arguments, photographs, campaign literature and supplies should be prepared, ready for reproduction.

(10) The aid of the hospital auxiliary should be enlisted.

(11) Prospect lists, including industry, organized labor leaders, business, civic, fraternal and veterans' organizations, known friends of osteopathy and former patients of the hospital should be assembled and evaluated.

(12) Steps should be taken to insure a cooperative press.

As an example of good procedure, I cite McLaughlin Osteopathic Hospital at Lansing, Michigan, which called upon the Public Relations Counselor of the Michigan Association for independent counsel. This institution has carried on a good program of public relations locally over a period of time. Its physical plant, while not sufficiently large, is well equipped. High standards are maintained. Its personnel is courteous and efficient. It has prominent lay members on its Board of Trustees. Its record of community service is outstanding. It wished to add a new wing. Architectural drawings, floor plans and cost estimates were obtained. Cost of individual items was determined. Board and staff members were united in their thinking. The Chamber of Commerce secretary was consulted and approval for a campaign was readily granted. The next move was to compile a list of fifty top industrial and business leaders known to the staff physicians. These were personally invited to meet at the hospital at 5:30 in the evening of a certain date for a tour of the hospital and later to be guests at a dinner downtown. Thirty-five of the fifty came. Most of them expressed amazement at what they saw and learned. The suggestion came from them that "*You* need a new wing." They were not asked for money but for advice. During the dinner, they were told the story of the hospital and what the profession had done in developing it to its present point. They learned, among other things, that there had never been a maternal death there and that out of 2,086 patients hospitalized, 1183 were employees of eighteen Lansing industries. The acute bed shortage was pointed out and the need of *more hospital beds for Lansing*. This was a *community* problem not a problem of the doctors nor of the hospital. They agreed.

Subsequently, a meeting of Board members and a few civic leaders resulted in the selection of a General Chairman. This individual, a retired millionaire, accepted. He volunteered to name his own Advisory Committee and Special Gifts Committee and to see the campaign through. Copy and dummy layouts of proposed campaign literature and other printed matter prepared by the Counselor were submitted to him for approval or changes. Prospects lists are in readiness. When industry is back to normal it is the intention to launch a campaign. Meanwhile, public education will continue. Such careful, thoughtful advance preparation provides no positive guarantee that the goal will be reached, but it does improve the likelihood a hundredfold.

The Mt. Clemens General Hospital (osteopathic) observed the first anniversary of its opening on February 10, 1946. Invitations were extended to prominent civic leaders of that area to attend the anniversary dinner, with State Association Board members, hospital trustees and staff members. Invitations to visit the hospital for open house inspection Sunday, February 10, from 1 to 5 p.m. were mailed to several hundred patients and friends. The invitation prepared as a Michigan Association Public Relations service, was inexpensively printed in offset, in the form of a small folder, with photographs and pertinent information on the public health service of the institution to the community. The local newspaper devoted considerable space to the event. The local newspaper publisher recently was elected to the hospital Board of Trustees.

Under the chairmanship of Robert K. Homan, the Public Relations Department of Michigan Association works through the sixteen district societies, each with a public relations chairman and in close cooperation with the Board of Trustees, Legislative and Public Health Departments. The Public Relations Counselor, retained by the year on a monthly retainer fee, maintains his own agency and can be contacted at any time by any of the district societies or any one of the twenty osteopathic hospitals in Michigan.

One of this department's functions has been, and is, to develop a more acute public consciousness of the osteopathic school of medicine as one which renders a *complete* service in the interests of public health of the people of Michigan; that in addition to osteopathic manipulative therapy, our osteopathic general hospitals in Michigan maintain high standards in surgery, obstetrics, internal medicine, orthopedics and other departments, with qualified specialists in these fields. Specimen literature, news stories, and pictures illustrate some of the ways through which this is being accomplished.

Special events have been staged at the hospitals from time to time, such as baby clinics, observance of annual hospital day with open house, a program for Child Health Week and V-D education work. The immunization program is good for a story and pictures as children return to school for the fall term. Sponsorship of the Ida Hibbard Fund to provide lifelike plastic hands for veteran amputees provided local, state-wide and national stories and pictures.

Close contact with the admitting office and obstetrical department reveals many cases which make news if there is someone with "a news sense" to recognize a story and interpret it to bring out its best possibilities. Many excellent stories are overlooked. Oftentimes a call from a hospital to the counselor on what appears to be a commonplace story can be built into a news feature in his office.

In interpreting osteopathy and services of the osteopathic hospitals to the public, it is essential that good taste and restraint be exercised.

The educational approach to the Michigan State Legislature illustrates this. While every member of the Legislature had received from time to time printed information relative to osteopathic services and osteopathic hospitals, few of them had ever been inside an osteopathic hospital. Philip E. Haviland and Hobart C. Moore, past presidents of the state Association, gained permission of the Lieutenant-Governor and Speaker of the House to extend an invitation to all members of the Senate and the House to make a trip to Detroit as guests of our Association, to inspect our two largest osteopathic hospitals—Art Centre and Detroit Osteopathic Hospital. Two separate trips were made. Thirty-three legislators, including the Public Health Committees of the Senate and the House and the Senate Finance Committee, were brought to Detroit. They saw every department of those hospitals in operation. They viewed surgical procedures, the obstetrical department, the laboratories and all other departments. They were provided with vital statistics. They were invited to ask questions. There were no sales talks. The legislators were simply invited to see with their own eyes and to draw their own conclusions. Reactions and subsequent comments were heart-warming.

To the Senate Finance Committee it was a revelation that the osteopathic profession built its own hospitals, operated them in the black and built up reserves from earnings for new additions and improvements. Later the Committee demanded to know of State tax-supported hospitals why they could not do likewise, instead of depending on huge sums from the State each year to make up operating deficits.

Don't get the mistaken idea that public relations is a one-man job which can be turned over to a chairman or a public relations counselor and dropped there. He can provide a program, advise, direct, cooperate, establish contacts and otherwise perform specific duties, but a successful program calls for the full cooperation of every individual connected with the institution, from the Board of Trustees, superintendent and professional staff to the cashier, receptionist and other employees, as well as the hospital auxiliaries. For public relations is made up of a lot of things, big and little—mostly intangibles. It is the duty of the hospitals and others to call the attention of the chairman or counselor to special events or happenings.

For most people, confinement in a hospital is an experience of a life-time. The patient remembers every detail of what transpired through his contacts with doctors and nurses and relates these details, good or bad, to family and friends for years afterward. Oftentimes hospital employees treat an individual as "just another patient." He doesn't want to be "just another patient." He is undergoing a very special experience which should not be minimized. Because a satisfied patient is the best booster, *everyone* connected with the hospital should be a salesman for the institution. The first public relations contact is the admitting clerk; second, the nurses and staff; third, the bookkeeping department or cashier's office. Have you courteous, sympathetic and interested personnel?

For example, I have stood by the cashier's office in hospitals while patients paid their bills. A young couple is taking home a new baby—their first. They are bursting with pride. I've heard the cashier say, impersonally: "What's the name, please?" then finger through a card index, pull out a card and say "Do you have hospital insurance? Well, that will be $87.50." The man counts out the money; the girl shoves forward the change, stamps the bill "paid," says "Thank you," and turns to the next person—cold as ice-water. How much better feeling this couple would have toward the hospital if the cashier were to show some interest in the new baby, congratulate the couple, wish them well and send them on their way rejoicing.

Some small piece of literature should be given to every patient upon discharge and should be in the reception lobbies. I recommend a cordial letter from the superintendent of the hospital or, if not a letter, a printed message acknowledging the patient's stay, telling of the hospital's desire to render every possible service for care and comfort, and enclosing a return card for an expression by the patient. Was everything satisfactory? What impressed him most about the hospital? What recommendations, if any, can he make? Get the name, address, occupation, etc. This is a means of building up an excellent mailing list which may prove valuable for legislative support, for recruiting financial campaign workers and subscribers, for building attendance at an annual benefit feather party or other social event of the hospital, and finally, as a nucleus for wider public education.

Build up a card-indexed mailing list of patients and friends; leaders of local industry, business, service clubs, veterans' organizations; newspaper publishers, editors and feature writers, radio station personnel, insurance company adjusters, clergymen, city officials, leaders of organized labor, women's clubs, fraternal organizations, and legislators from your district. Note pertinent information on each card. From time to time, printed information can be mailed to them. Are your civic leaders being educated and cultivated? Is the hospital auxiliary a clique of doctors' wives who wish to keep it that way, or have they built up a strong lay membership which will work voluntarily in the interests of the hospital? I have seen both types of auxiliary.

The Public Relations Department of the Michigan Association volunteers to furnish copy and layouts for illustrated folders for any of the hospitals in Michigan upon request. Available to all D.O's and to all hospitals are inexpensive educational folders which can be adapted to the local institution. The public relations service does not extend to financial campaigns for the hospitals.

In review, may I repeat that public relations embraces vastly more than publicity. It involves the whole relationship of the hospital and its staff with the general public. Intelligently administered, it enlists and crystallizes favorable public opinion; it discovers, educates and cultivates friends who will work in the interests of the hospital and subscribe money thereto for expansion and equipment; it can be a powerful legislative influence. As a united, cooperative effort, it protects and promotes the interests of the institution. The nineteen million dollar annual revenue of osteopathic hospitals in this country is a tribute on the part of public opinion, but the surface of possibilities for wider public health service has not been scratched. Each of the 11,000 osteopathic physicians and surgeons in America holds an individual public relations responsibility *through the conduct of his own practice,* his professional standards and ethics, *his* place in the life of his town or city.

In the light of the undertakings of the Division of Public and Professional Welfare of the American Osteopathic Association, which is the spearhead for the cultivation of public opinion nationally, and of divisional societies working along these lines in local areas, I recommend that divisional society officials convey to their membership the supreme importance of the task and the need for an awakened public relations consciousness in local communities.

208 Murphy Bldg.

Current Medical Literature

Abstracted by Katherine Becker, B.A.

FOLIC ACID IN THE TREATMENT OF MACROCYTIC ANEMIAS

The ability of folic acid (pteroylglutamic acid) to induce hematologic remission in pernicious anemia and the related anemias of sprue, pregnancy and nutritional deficiency has been well established states Robert W. Heinle, M.D., in the December 1946 *American Practitioner.* These anemias are characterized by macrocytosis of the circulating erythrocytes and megaloblastic hyperplasia of the bone marrow. Folic acid appears to be of no benefit in other types of anemia, such as the hypochromic anemia of iron deficiency and secondary anemias associated with cancer, leukemias, and other members of the lymphoma group.

Studies leading to the clinical use of folic acid have been carried on since 1938. As a member of the vitamin B complex known to be necessary for proper growth and hematopoiesis, it was studied under a variety of names, including Lactobacillus casei factor, Streptococcus casei R factor, norite eluate factor, factor U, vitamin Bc, and vitamin M. Since it has become obvious that all the investigators were dealing with the same, or very closely related substances, the name folic acid has become widely accepted. Synthetic folic acid, identical with the L. casei factor of liver, consists of a substituted pteridin in combination with para-aminobenzoic acid and one molecule of glutamic acid.

Heinle says that when a patient with untreated pernicious anemia is given folic acid, hematologic remission follows, identical to that obtained with effective liver extract. There is prompt reticulocytosis followed by increase in erythrocytes, leukocytes, platelets, and hemoglobin. Macrocytosis is eliminated. A feeling of well being develops, appetite improves, soreness of the tongue disappears, and numbness and tingling of the extremities is lessened. A much longer period of observation will be necessary before it can be seen whether the more advanced degeneration of the posterolateral columns of the spinal cord will be as completely arrested by folic acid as by liver extract.

The writer is of the opinion that the maintenance of remission in patients is probably of greater importance than the treatment in relapse. He gives a report on a series of 30 patients with pernicious anemia who had been maintained by intramuscular injections of liver extract for many months or years before being given folic acid. Half have received intramuscular injections of either 50 or 150 mg. of folic acid at a single dose every 2 to 4 weeks. Half have received oral doses of either 10 or 20 mg. daily. In a period from 7 to 9 months of treatment none has shown any definite signs of hematologic or neurologic relapse.

According to Heinle it is difficult at present to recommend a definite dose schedule, but he says that for the time being it appears safest to administer 20 mg. daily by intramuscular injection or 50 mg. orally for patients in relapse. The dose for maintenance in remission can not be categorically stated at this time, but oral doses of 2.5 to 10 mg. or intramuscular doses of 7.5 mg. daily have been recommended. The writer points out that daily intramuscular injection is impractical and unnecessary, but notes the difficulties due to large doses if the period between intramuscular injections is prolonged. He believes that oral administration will prove superior for maintenance therapy.

Toxic effects of folic acid are practically nonexistent with the oral and intramuscular doses used thus far (intramuscular to 150 mg. at a single dose and oral to 200 mg. daily). Intravenous administration is not recommended. Rapid intravenous administration of 150 mg. has resulted in a few cases in shock-like reaction. However, recovery has always occurred in a few minutes. Folic acid has some effect when given rectally although absorption is not good.

The writer warns that patients who are given folic acid rather than liver extract must be observed with the utmost care since it has not yet been determined whether folic acid is a complete substitute for liver extract.

TUBERCULOSIS RECORD SYSTEMS—EDITORIAL[1]

Recent acceleration in tuberculosis control activities in State and local health departments has been largely motivated by mass radiography in case finding. The widespread application of small-film techniques has discovered more active, subclinical, and suspicious pulmonary tuberculosis than has ever been detected before in the history of public health. Even a casual survey of the majority of local programs reveals that quality and quantity of case finding have far surpassed the basic follow-up and case holding of newly discovered tuberculosis.

Simple and efficient tuberculosis record systems that are planned to meet local needs are fundamental to good follow-up procedures. They facilitate a maximum utilization of limited clinical, laboratory, and field nursing services. To correlate all phases of tuberculosis control, to bring about an equitable distribution of professional services, there exists an urgent need for extensive record systems based upon defined requirements. Even individual case management is hampered by the inadequacy of existing records.

With the rapid expansion of local, State, and Federal activities, local registers and record systems have assumed addditional significance. In a local area with an established tuberculosis control program, a case register has repeatedly been recommended for case management, for current inventory of the case load, interval evaluation of the effectiveness of activities in relation to their cost, and for a realistic knowledge of the extent of the problem.

Now that State and local health departments are launching State, county, and city projects to find cases and to give medical supervision to ambulant persons, tuberculosis record systems and coordinated local registers become essential, if the full benefits of any new program are to be experienced. Inefficient record systems will encumber and defeat the most promising of tuberculosis control programs. However, smoothly functioning record systems, even though they precede necessary services, may well be the essential administrative tool needed for the development and eventual success of the program.

Local registers are especially useful in individual case management. State tuberculosis record systems that contain summarized information from local sources are essential in program supervision, planning, and evaluation. Semiannual or annual compilation of uniform data from the State health departments makes possible a concise and current national summary of the extent and results of case finding, the ultimate disposition of cases discovered, and the trends in morbidity and mortality. In addition, such a summary presents an opportunity to base long-range planning on predictions derived from analyses of reliable data. Comparisons of State records can easily be made and, as areas of great need become apparent, additional funds and personnel can be concentrated in any given community before irreparable damage to public health is done.

The tuberculosis services of a health department cannot be described by statistics alone. However, a combination of meaningful statistical summary and professional description of nonquantitative tuberculosis activities can supply the best answers to the administrator who must justify his health program in terms of protection of the community, extent of the problem, effectiveness of all activities, and funds expended.

Well-planned and effective record systems can make the practice of public health, as applied to tuberculosis control, really a science and not just empirical guesswork. Many questions in the epidemiology of tuberculosis remain unsolved. They require solution before eradication of the disease can be realized in a measurable time. Better records, and time for their analysis, could reduce the number of past mistakes and enable us to determine if what we have proposed and carried out has accomplished the desired end.—*Public Health Reports*, May 3, 1946.

[1]From the Office of the Chief, Tuberculosis Control Division.

THE OLDER MEDICAL EDUCATION

With a few exceptions, such as Virginia, Pennsylvania and Transylvania (now Louisville), many of the medical schools, both North and South, founded during the nineteenth century, were proprietary commercial ventures for the collection of fees from students and to increase the teachers' practices. They were lecture mills, usually repeating the same courses each year, followed by little or no practical work, except apprenticeship to an older physician. "Sessions at most institutions were limited to three or four months, since most of the students were already practicing and could not afford to desert their patients for a longer time. Although the course usually lasted two sessions, there was no division into grades; the pupils sat through the same curriculum twice over, on the theory that what they did not understand the first time they might understand the second. Hospital and laboratory work was almost unknown. Even Dr. Cabell taught human and comparative anatomy, physiology, materia medica and surgery!—Wilburt C. Davison, M.D., *Journal of the Association of American Medical Colleges*, July 1946.

Book Notices

STRUCTURE AND FUNCTION AS SEEN IN THE FOOT. By Frederic Wood Jones, D.Sc. (London, Adelaide & Melbourne), F.R.S., F.R.C.S., Professor of Anatomy, University of Manchester. Cloth. Pp. 329 with illustrations. Price $7.50. The Williams & Wilkins Company, Mt. Royal and Guilford Aves., Baltimore, 1944.

Detailed presentation characterizes this small text which provides basic information for the student or anyone interested in the foot as a specialty. Among the chapter headings are: "The Principles of Terminology," "Metatarsal Formula," "External Characters." Discussed in detail are the bones, muscles, fascias, tendons, nerves, and vascular channels. The book is effectively illustrated to indicate development and function of the foot.

THE SECOND FORTY YEARS. By Edward J. Stieglitz, M.S., M.D., F.A.C.P. Cloth. Pp. 317, with illustrations. Price $2.95. J. B. Lippincott Company, East Washington Square, Philadelphia, 1946.

With prolongation of the life span in this and other fortunate countries, the per cent of men and women beyond 60 has become an important social, economic, and medical problem. This book for laymen is clear and direct in style and in illustrations, and was written to help lengthen the years of usefulness of aging folk, to ease the economic burdens of their children, and to decrease the waste of valuable human resources.

Among the chapter headings are: "How Old Is Old?" "The Biology of Senescence," "Life with a Handicapped Heart," "High Blood Pressure," "Nutrition in Later Years," "Sex and Age," "The Question of Cancer," "The Point of View," "Wise Investment of Leisure," and "Constructive Medicine."

HYGIENE. By Florence L. Meredith, B.Sc., M.D., Fellow of the American Medical, American Public Health, and American Psychiatric Associations; Professor of Hygiene and Public Health, Tufts College. Ed. 4. Cloth. Pp. 838, with illustrations. Price $4.00. The Blakiston Company, 1012 Walnut Street, Philadelphia, 1946.

Health, physical and mental, is treated in this textbook for college students from both personal and public aspects. The theme running through this fourth edition includes: The health situations that exist in the life of individuals and peoples, the health objectives that arise from them, and the action that is scientifically appropriate for the layman to take.

Important changes have been made in content and arrangement of material. Divisions of the book are: "The Health Situation in the United States," "The Body in Health and Disease," "Forces for Health," "Problem of Infection," "Other Major Health Problems," "Accidents and Poisoning," "Hygiene for Everyday Life," "Reproduction," and "Mental Health." A supplement and an extensive bibliography are appended.

The author's fair and basic treatment of the subject of mental health, motives, attitudes, habits, social technics, etc., deserves special comment.

NURSING CARE IN CHRONIC DISEASES. By Edith L. Marsh, R.N., S.C.M., Superintendent, Cuyahoga County Nursing Home, Cleveland, Ohio. Cloth. Pp. 237, with illustrations. Price $3.00. J. B. Lippincott Company, 227 S. Sixth Street, Philadelphia, 1946.

The author, a nurse, presents original contributions in care of the chronically ill patient, with concrete suggestions for greater comfort of the patient and more effective care in various pathological conditions including carcinoma, heart and arterial disease, arthritis, muscular dystrophy, paralysis from different causes, and mental disturbances. The value of psychiatric knowledge and the need for increased education in the field of geriatrics are stressed. Consideration is given to special diets, physical and occupational therapy, and rehabilitation. The book is decidedly readable and would be a valuable addition to the library of any general practitioner.

VICTORY OVER PAIN: A History of Anesthesia. By Victor Robinson, M.D. Cloth. Pp. 338, with illustrations. Price $3.50. Henry Schuman, Publisher, 20 East 70th Street, New York 21, 1946.

The author, in his usual authentic, colorful, and dramatic style, records the struggle of people of the East and the West to achieve relief from pain, from ancient times to the present.

This graphic story of the development of the science of anesthesia brings it from the mystery of the laboratory and operating room, causing it to become an integral part of general culture and of everyday life. Important in the story are: Ether, nitrous oxide, cyclopropane, ethylene, and the newer pentothal sodium. There are chapters on technics; continuous caudal analgesia; endotracheal, intravenous, spinal, refrigeration, and rectal anesthesias. The selected and annotated bibliography adds to the value of the book.

"Eternal vigilance is the price of safety in anesthesia. The ancient legend of Sleep as the twin-brother of Death gains a new meaning in the slumber of Anesthesia."

RELAXATION. By Josephine L. Rathbone, Associate Professor of Physical Education Teachers College, Columbia University, New York City. Cloth. Pp. 157. Price $1.75. Bureau of Publications, Teachers College, Columbia University, New York City, 1943.

This small book is a down-to-earth presentation, treating of tension and fatigue, their causes and treatment, both physical and psychological. There is no trick to rescue the tense, overworking, overworrying person. He must "awaken to the fact that only by learning how to relieve tension at will and by planning activities wisely can anyone achieve a balanced way of life." The book will be useful to the person who wants to learn how to discover signs of tenseness in himself and the causes of it; the "how" and "why" of relaxation, specific exercises, and tips on how to induce sleep; the psychological factors that make for poise.

Two quotations are representative: "To relax the muscles completely will induce sleep. Any time of day or night, if the muscles of the extremities, trunk, neck, and mask are relaxed, one will be unable to remain awake." "In adults it [laughter] is an expression of successful, faultless adapation to the environment, as well as of health."

HEALTH AND PHYSICAL FITNESS. By I. H. Goldberger, M.D., Assistant Director of Health Education, New York City Public Schools; and Grace T. Hallock, Director, Welfare Publication Bureau, Metropolitan Life Insurance Company. Cloth. Pp. 596 with illustrations. Price $1.92. Ginn and Company, Statler Office Bldg., Park Square, Boston, 1943.

This excellent high school textbook, written "to help American youth to be strong and healthy in body, sound in mind, firm and zealous in morale, and well balanced in personality," is remarkable in its coverage of the field of health and hygiene and is well illustrated. The four parts of the book are titled: "Your Equipment for Living and How to Use It," "Your Personality and How to Enrich It," "Your Home and Community and How to Make Them Healthful," "Your Future and How to Face It."

Any doctor who treats children, including high school young folk, would do well to see this book—both to pick up a few pointers regarding suggestions the doctor can effectively make to his young patients and to get a better idea than many of us have of what children are being taught in the health field. Among the subjects treated are the child's physical and mental development, heredity, nutritional requirements, accident prevention, first aid, balancing the family budget, caring for the baby, conquest of disease, and even paying the doctor bill.

DIAGNOSIS AND TREATMENT OF MENSTRUAL DISORDERS AND STERILITY. By Charles Mazer, M.D., F.A.C.S., Assistant Professor of Gynecology and Obstetrics, Graduate School of Medicine, University of Pennsylvania; Gynecologist to the Mount Sinai Hospital, Philadelphia; and S. Leon Israel, M.D., F.A.C.S., Instructor in Gynecology and Obstetrics, School of Medicine, University of Pennsylvania; Associate Gynecologist to the Mount Sinai Hospital, Philadelphia. Ed. 2, revised and enlarged. Cloth. Pp. 570, with illustrations. Price $7.50. Paul B. Hoeber, Inc., 49 East 33rd Street, New York 16, 1946.

This book, clinical in emphasis and practically organized, was designed especially to meet the needs of the general practitioner. In this second edition new topics, diagnostic technics, and treatments have been added, with discussions of theory kept to a minimum. New material is presented on the Rh factor in relation to prematurity and stillbirths, antihormone effects, relative potency of many estrogens, toxemias of pregnancy, and other related problems. There is a chapter on male sterility, written by a specialist in that field, and one on artificial insemination.

In addition to proved methods of treatment, including radiotherapy and accepted endocrine technics, an up-to-date list of commercially available endocrine products, their potency, and dosage is included.

DIABETIC CARE IN PICTURES. By Helen Rosenthal, B. S., Associate Dietitian in the Food Clinic, The Boston Dispensary; Assistant in Medicine, Tufts College Medical School; Frances Stern, M.A. (Honorary), Chief of the Food Clinic, The Boston Dispensary; Instructor of Medicine, Tufts College Medical and Dental Schools; Special Instructor in Dietetics in Social Service, Simmons College, The School of Social Work; Associate in Nutrition, Simmons College School of Home Economics, and Joseph Rosenthal, M.D., Chief of Diabetic Clinic, Assistant Medical Director, Medical Supervisor of the Domiciliary Medical Service, The Boston Dispensary; Assistant Professor of Medicine, Tufts College Medical School; Associate Physician, Joseph H. Pratt Diagnostic Hospital. Paper. Pp. 150, with illustrations. Price $2.00. J. B. Lippincott Company, 227 S. Sixth St., Philadelphia, 1946.

This is a book of simplified statements for the use of the diabetic patient, generously illustrated with pictures showing foods and medication and their measurement; equipment and technics, including urinalysis; exercises and shoe selection. Its purpose is to give information to the patient which will remove fear and give him a feeling of security and to aid the doctor through better patient cooperation. Consideration is given to human relations because the mind and body are so intimately related and complete treatment involves personal and social, as well as physical, factors.

Invaluable to patient and physician alike, this small book is an example of effective visual education.

WHITE CAPS: The Story of Nursing. By Victor Robinson, M.D., Professor of History of Medicine, Temple University School of Medicine, Philadelphia; Lecturer on History of Nursing, Temple University School of Nursing. Cloth. Pp. 425, with illustrations. Price $3.75. J. B. Lippincott Company, 227 South Sixth Street, Philadelphia, 1946.

In his introduction the author says, "The entire history of nursing may be summed up in the statement: the nurse is the mirror in which is reflected the position of woman through the ages. . . . The untrained nurse is as old as the human race; the trained nurse is a recent discovery. The distinction between the two is a sharp commentary on the follies and prejudices of mankind."

This book is a history of nursing—of nurses—from antiquity to the present day, which reflects vividly the thinking, superstitions, traditions, and customs of the peoples through the centuries. Religion, war, the work of doctors and nurses, the development of hospitals, the treatment of patients physically and mentally ill are all woven into the record in picturesque detail which holds the reader's attention through the terrible and the sublime. The choice of material and the atmosphere of authenticity indicate that the author possesses a wealth of knowledge of his subject. Actually, he is one of the first physicians in America to devote himself exclusively to medical history.

Anyone interested in the healing profession should have such background of medical history as this book depicts. Appended are: "The March of the Nurse," brief highlights from the Hebraic Era to 1945, and very useful "Bibliographical Notes."

Conventions and Meetings

Announcements

American Osteopathic Association, Annual Meeting, Chicago, July 21-25 inclusive. Program Chairman, Murray D. Weaver, Ontario, Cal.

Academy of Applied Osteopathy, Chicago, July 17-19. Program Chairman, Ralph W. Rice, Los Angeles.

American Association of Osteopathic Colleges, Chicago, July 18-20.

American Association of Osteopathic Examiners, Chicago, July 22.

American College of Osteopathic Obstetricians, Chicago, July 19, 20.

American College of Osteopathic Pediatricians, Chicago, July 20 and 22.

American College of Osteopathic Surgeons, Hotel Biltmore, Los Angeles, October 20-23. Program Chairman, Lucius B. Faires, Los Angeles.

American Osteopathic Board of Surgery, Stevens Hotel, July 20.

American Osteopathic Society of Herniologists, Morton Hotel, Grand Rapids, Mich., July 19, 20.

American Osteopathic Society of Proctology, Hotel Statler, Boston, May 13-16. Program Chairman, J. J. Cronin, Boston.

Auxiliary to the American Osteopathic Association, Chicago, July 21-25.

California, Hotel del Coronado, Coronado, May 14-17. Program Chairman, Russell M. Husted, Long Beach.

Eastern Osteopathic Association, April 12, 13. Program Chairman, Chester D. Losee, Westfield, N. J.

Florida and Georgia, George Washington Hotel, Jacksonville, May 22-24. Program Chairmen, J. A. Camara and Paul E. Duffé, both of Jacksonville.

Georgia: See Florida.

Illinois, Pere Marquette Hotel, Peoria, May 2-4. Program Chairman, L. A. Browning, Bloomington.

Indiana, Hotel Antlers, Indianapolis, May 9, 10. Program Chairman, Fred L. Swope, Richmond.

Missouri, Municipal Auditorium, Kansas City, September 30, October 1, 2. Program Chairman, C. F. Warren, Marshall.

New York, Pennsylvania Hotel, New York City, October 3-5.

Ontario, Hamilton, May 8-10. Program Chairman, C. V. Hinsperger, Windsor.

Osteopathic Academy of Orthopedists, Statler Hotel, Detroit, February 20-22. Program Chairman, H. N. Tospon, St. Joseph, Mo.; Co-chairman, Troy L. McHenry, Los Angeles.

Osteopathic College of Ophthalmology and Otorhinolaryngology, Detroit, July 17-19.

Osteopathic Cranial Association, Hotel Kirkwood, Des Moines, Iowa, April 11-13.

Osteopathic Women's National Association, Chicago, July 20 and 22.

Pennsylvania, Refresher Course, Hotel Roosevelt, Pittsburgh, March 4, 5; Philadelphia, March 7, 8. Annual Meeting, William Penn Hotel, Pittsburgh, September 6, 7. Program Chairman, George D. Kline, Tarentum.

Society of Divisional Secretaries, Chicago, July 19, 20.

South Dakota, Huron, June 8-10.

Texas, Postgraduate Conference, Hotel Adolphus, Dallas, April 3-5. Program Chairman, J. R. Alexander, Houston.

Vermont, Rutland, September 24, 25. Program Chairman, R. H. Bartlett, Burlington.

Virginia, Richmond, April 12. Program Chairman, Alfred G. Churchill, Arlington.

West Virginia, West Virginian Hotel, Bluefield, June 1-3.

OFFICIAL AND AFFILIATED ORGANIZATIONS

CALIFORNIA

Alameda County

At the meeting on November 12 at Oakland osteopathic physicians who had been in practice forty years or more were honored. Mr. Will Rodgers, Registrar, C.O.P.S., Los Angeles, spoke on vocational guidance.

Los Angeles City

A meeting was scheduled to be held in Los Angeles on December 9 at which Dr. Manley Hall was to speak on "Hypnosis As a Therapeutic Agent."

Orange County

"Orthopedics in General Practice" was the topic discussed by Troy McHenry, Los Angeles, the principal speaker at the November meeting in Santa Ana.

L. B. O'Meara, Los Angeles, was scheduled as the speaker at a meeting in Santa Ana on January 9.

San Francisco

At the November meeting Donald Fleming, San Francisco, conducted a discussion on manipulative problems of the shoulder girdle.

San Jose District

The research program in the colleges was reviewed by N. H. Hines, Garvey, at the meeting in San Jose on December 14. Helen H. Shelley, San Jose, presented a Mexican travelogue.

Ventura County

Preston J. Stack, gave a talk on ear, eye, nose, and throat problems at the meeting in Saticoy on November 14.

West Los Angeles

Public health problems were discussed by H. C. Pulley, M.D., of the Los Angeles Health Department at the meeting in Beverly Hills on November 12.

FLORIDA

St. Petersburg

The new officers are: President, Charles H. Jennings; vice president, A. D. Glascock; secretary-treasurer, D. G. Perry, all of St. Petersburg.

The committee chairmen are: Membership, Dr. Perry; ethics, Richard Berry; hospitals, George S. Rothmeyer; legislation and public relations, James A. Stinson, all of St. Petersburg.

District One

A meeting was scheduled to be held in Panama City on January 12 at which the guest speaker was to be B. P. Harter, Winter Garden.

District Five

A meeting was held in St. Petersburg on November 5.

District Six

A meeting was held in West Palm Beach on November 15. The principal speaker, Maurice Garrett, Lake Worth, spoke on "Office Procedures in Proctology."

A meeting was scheduled to be held in Delray Beach at which Orel F. Martin, Coral Gables, was to speak.

District Eight

A series of lectures on "Cranial Osteopathy" were presented by J. Marvin Farrar, Miami, at the regular November and December meetings and a special meeting on November 19.

ILLINOIS

First District

A round-table discussion on pneumonia with John Peck, Kankakee, and William J. Loos and Jack H. Grant, Chicago, as speakers was held in Chicago on January 9.

The officers were announced in the September JOURNAL. The trustees are: Alfred C. Boehm, Floyd F. Peckham, and S. V. Robuck, all of Chicago, Ernest R. Peterson, Oak Park, and Douglas D. Waitley, Evanston.

The committee chairmen are: Membership, Dr. Boehm; ethics, S. Edward Stanley; hospitals and clinics, K. R. M. Thompson; vocational guidance, Metta Davis Keith; public health, William J. Loos; industrial and institutional service, Ellis Siefer; professional relations and radio, Earl J. Drinkall; professional speakers and program, S. V. Robuck; insurance and veterans' affairs, George O. Rose; visual education, J. H. Grant; civilian defense and Selective Service, A. S. Guernsey; professional education and development, R. N. MacBain; public and professional welfare, M. A. Tengblad; editorial, Charles A. Chval; unit contact, Charles E. Gaddie; maternal health and welfare, Margaret Barnes; old age assistance, Dr. Peckham, all of Chicago; legislation, Dr. Peterson; Red Cross, Earl F. Frisbie, Park Ridge; speakers bureau, Robert N. Evans, La Grange.

INDIANA

Fourth District (Northern)

"The Cervical and Upper Dorsal Spine" was the subject presented by W. Fraser Strachan, Chicago, at the meeting in South Bend on November 30.

IOWA

Des Moines

A meeting was scheduled to be held on January 8 at which the program was to be presented by the Des Moines Still College of Osteopathy.

KANSAS

South Central

Richard Gibson, Winfield, spoke on "Manipulative Technics" at the meeting in Arkansas City on November 14.

MASSACHUSETTS

State Society

The following program was announced in advance for the annual meeting scheduled to be held in Boston January 18, 19: "Applied Anatomy of the Cervical Area," Arthur A. Martin, Malden; "Immunization of Infants and Children," Nelson D. King, Boston; "Scoliosis," H. Brooks Walker, Nantucket; "A Thousand Years Ahead of Us," and "Cranial Therapy of the Newborn," Beryl E. Arbuckle, Philadelphia; "Structural Examination in General Diagnosis," and "Osteopathic Management of Acute Diseases," Charles K. Smith, Kirksville, Mo.; "Cranial Osteopathy—An Introduction," Anne Wales, Providence, R. I.; "Applied Anatomy of the Upper Dorsal Area," A. F. McWilliams, Boston; "The Rh Factor," Lionel J. Gorman, Boston; "The Retracted Tympanic Membrane," Robert H. Veitch, Boston; "Osteopathic Education," Richard N. MacBain, Chicago; "Osteopathic War Veterans—A Report," J. Philip Gurka, Lawrence; "The Recurrent Low-Back Disability," Myron Barstow, Boston.

Connecticut Valley

A meeting was held in Northampton on December 17 at which Paul Brose, Holyoke, spoke on "Office Procedures."

The following officers were elected: President, Bertha Miller, Springfield; vice president, Anne M. Fielding, Greenfield; secretary-treasurer, Charles W. Wood, Holyoke; trustee, Dr. Miller.

Middlesex South

Lawrence Osborn, Worcester, spoke on Osteopathic Progress Fund at the meeting in Cambridge on November 14.

At the December meeting in Cambridge the following officers were elected: President, Richard Montague, Concord; vice president, Mildred E. Greene, Waltham; secretary-treasurer, Winifred Shaffer Miller; trustee, Everett L. Pierce, both of Newton.

Mystic Valley

"Precoronary Conditions" was the subject presented by H. Earle Beasley, Reading, at the December meeting in Medford.

MICHIGAN

State Society Auxiliary

The officers are: President, Mrs. Robert Ogden, Inkster; president-elect, Mrs. Robert T. Lustig, Grand Rapids; vice president, Mrs. I. W. Graw, Saginaw; secretary-treasurer, Mrs. Alan R. Becker, Jackson; corresponding secretary, Bernice W. Kani, D.O.

The committee chairmen are: Program, Mrs. Graw; membership, Mrs. Lustig; public relations, Mrs. William H. Bethune, Grand Rapids; legislative, Mrs. Ogden.

East Central

Officers were elected at the meeting in Flint on November 13. They are: President, Nelson H. Cathcart, Davison (re-elected); vice president, John Laird, Flint; secretary, Harold Bruckner, Clio (re-elected); trustees, J. V. Murphy, Mount Morris, and Raymond Perdue, Flint.

Southeastern

At the meeting in Ann Arbor on November 17 the following officers were elected: President, C. C. Lucas, Ann Arbor; vice president, T. Tienvieri, Petersburg; secretary-treasurer, R. F. Kraker, Ann Arbor; trustees, F. Broadwater, Adrian, L. J. Wilson, Ypsilanti, Carl French, Monroe, and W. B. Stribley, Milan.

MISSOURI

State Society

The first annual Conference of District Presidents, Secretaries, Trustees and State Officers and certain selected committee chairmen was held in Jefferson City on December 9.

Ozark

The officers are: President, Louise Remmert; vice president, Howard T. Mason; secretary-treasurer, R. A. Michael; trustee, William L. Wetzel, all of Springfield.

The committee chairmen are: Ethics, H. C. Ward; clinics, T. M. King; statistics, W. J. Williams; legislation, Dr. Wetzel; publicity, C. A. Wurst; professional education, Lou Noland, all of Springfield; membership, J. H. Lepere, Stockton; hospitals, R. C. Mitchell, Republic; vocational guidance, W. F. Zumbrun, Bolivar; public health, W. R. Davis, Walnut Grove; industrial and institutional service, J. G. Bennett, Buffalo; public relations, R. E. Mitchem, Ozark; veterans' rehabilitation, J. E. Blinn, Marshfield; Osteopathic Progress Fund, R. W. Reid, Willard; professional development, Robert Winegardner, Lockwood.

NEBRASKA

Western

A meeting was held in Grand Island December 7, 8. The program was as follows: "Motion in Therapy," "Acute Infections," and "Technic," Byron E. Laycock, Des Moines, Iowa; "Poliomyelitis and Technic," Lonnie L. Facto, Des Moines, Iowa; and "Asthma and Technic," Orville Ellis, Lincoln.

NEW YORK

State Society

The officers were reported in the December JOURNAL. The department heads and committee chairmen are: Department of National Affairs, William S. Prescott, Syracuse; Federal-State coordinator and veterans' affairs, Dr. Prescott; unit contact, Lawrence S. Robertson, New York; Department of Professional Affairs, Eugene J. Casey, Binghampton; ethics and vigilance, M. Lawrence Elwell, Rochester; Osteopathic Progress Fund, John R. Pike, Albany; professional education, Howard B. Herdeg, Buffalo; professional liability insurance, Edith E. Dovesmith, Niagara Falls; vocational guidance, Clarence E. Long, Jr., Buffalo; Department of Public Affairs, David J. Bachrach, New York; public relations, Wesley C. Luther, Hamburg; legislation, Melvin B. Hasbrouck, Albany; Department of Public Health, William B. West, Port Chester; clinics and hospitals, Warren J. E. Tucker, Port Washington; public health, Francis J. Beall, Syracuse; state and social medicine, Albert W. Bailey, Schenectady; Department of State Affairs, Merritt C. Vaughan, Rochester; constitution and bylaws, Alvah H. Leeds, Yonkers; convention, finance and budget, Dr. Vaughan; health and accident insurance, Dr. Prescott; student loan fund, Edwin R. Larter, Niagara Falls; membership, Robert E. Cole, Geneva; workmen's compensation, Hewett W. Strever, Rochester.

Central

At the meeting in Syracuse on November 14 Francis J. Beall, Jr., Syracuse, spoke on "Acute Emergencies of the Chest."

Long Island

The officers are: President, Edward S. Smith, Bayport; vice president, Thomas A. Fleming, Amityville; secretary, Ormond deF. Seibert, Baldwin; treasurer, Roger S. Wells, Manhasset.

The committee chairmen are: Ethics, H. Davis Ackerly, Glen Cove; hospitals and clinics, Warren J. E. Tucker, Pt. Washington; legislation, Elizabert S. Carlin, Hempstead; public health, Richard M. Jameson, Great Neck; postgraduate study, James D. Maxwell, Rockville Centre; public relations, Dr. Seibert.

New York City

The program scheduled to be presented at the joint meeting with the Osteopathic Center staff on December 11 included a discussion on the organization and operation of a diagnostic group associated with a hospital and a presentation of shoulder problems by Omar Latimer, New York.

Westchester

Osteopathic Progress Fund was the topic discussed by L. B. Spence, White Plains, at the November meeting in Port Chester.

A meeting was scheduled to be held in Yonkers on December 18.

OHIO

First District (Toledo)

A meeting was scheduled to be held in Toledo on November 20 at which L. F. Licklider, Akron, was to speak.

Third District (Cleveland)

The program at the November meeting in Cleveland was a symposium on recent advances in various branches of osteopathic medicine. Robert Truhlar acted as moderator. The subjects were presented as follows: "Osteopathic Manipulation," Leonard Greenbaum; "Ophthalmology," Leonard Rench; "Rh Factor," R. N. Sheppard; "Pediatrics," Helen Hampton; "General Surgery," R. A. Sheppard; "Urology," R. W. Kelley; "Thoracic Conditions," R. A. Bageley; "Radiology," R. P. Keesecker; "Proctology," R. O. Buck; "Communicable Diseases," J. J. Coan, all of Cleveland; "Rhinolaryngology,"

C. C. Foster; "Obstetrics," H. R. Sprague; "Anterior Poliomyelitis," E. A. Brown, all of Lakewood.

Eleventh District (Dayton)

J. Milton Zimmerman, Dayton, was scheduled to speak on "Psychosomatic Aspects of Gastrointestinal Diseases" at a meeting in Dayton on November 20.

OKLAHOMA
Cimarron Valley

The officers elected at the meeting on November 16 were: President, Russell Godtel, Drumright; secretary-treasurer, M. M. Hitchcock, Cushing.

The committee chairmen are: Membership, Dr. Hitchcock; ethics, Dr. Godtel; hospitals, F. L. Reed, Oilton; legislation, C. Ewing, Yale.

OREGON
Southern

At the meeting in Ashland on November 12 the speaker was Blaine B. Pruett, Grants Pass.

The officers elected at the meeting were: President, H. A. Krause; vice president, J. S. Heatherington; secretary-treasurer, G. A. Dierdorff, all of Medford.

PENNSYLVANIA
State Society

It has been announced that the program of the refresher course to be held in Pittsburgh March 4, 5 and in Philadelphia March 7, 8 will include the following: Discussions of rheumatic fever, parathyroid disease, brucellosis, arthritides, trichinosis, peripheral vascular disease, and metastatic bone disease by Ralph E. Everal, Detroit; discussions of osteochondrosis, spondylitis, congenital anomalies, slipped epiphyses, arthritides, and primary bone tumors by James M. Eaton, Philadelphia; discussions of posture, Morton's syndrome, osteopathic lesion pathology, spinal centers, viscerosomatic reflexes, muscle toxemias, appendicular lesions, and diagnostic signs by Walter P. Bruer, Detroit; discussion of roentgenology, Charles J. Karibo, Detroit.

Mifflin County

The officers are: President, Harvey C. Orth, Lewistown; vice president, Robert Kitting, Reedville; secretary-treasurer, Newton C. Allen, Lewistown.

Second District

A special meeting was held in Wayne on December 8 at which programs for 1947 and the various osteopathic fund raising campaigns were discussed.

Third District

"Blood Dyscrasias" was the subject presented by John E. Leech, Allentown, at the meeting in Easton on November 15.

The officers were announced in the December JOURNAL. The committee chairmen are: Hospitals and clinics, Michael Blackstone; program, William H. Behringer, Jr., and John E. Leech; professional and public health legislation, Charles A. Heard, all of Allentown; vocational guidance, Charles E. Kirk, Emmaus; ethics and censorship, Alice S. Bryant; membership, John R. Newell, both of Bethlehem; insurance, Harold A. Bell, Easton; veterans, Howard E. Bowman, Reading.

Eighth District

The officers elected at the meeting on December 8 were: Chairman, Raymond E. Wert; vice chairman, Charles F. Winton, both of Pittsburgh; secretary, Richard N. Fithian, Somerset (all re-elected); treasurer, George D. Kline, Tarentum.

The committee chairmen are: Hospitals and clinics, Reed Speer; membership, Ruth A. Franz; ethics and censorship, Dr. Winton; insurance, R. Gilbert Dorrance; veterans, H. B. McCleeland; public health education, John B. Green, all of Pittsburgh; program, Roy E. Hughes, Indiana; vocational guidance, R. M. Perry, Turtle Creek; industrial relations, Frederick E. Arble, Carrolltown; professional and public health legislation, Samuel W. Irvine, Beaver Falls.

TENNESSEE
West

At the meeting in Covington on December 1 the following program was presented: "Minor Shock, Simple Fainting, and Heart Attack," M. E. Coy, Jackson; "Minor Surgery," J. M. Moore, Jr., Trenton; "Sulfa Drugs and Penicillin," L. D. Elliston, Covington.

A meeting was scheduled to be held in Union City on January 20.

TEXAS
Dallas County

At the meeting in Dallas on December 12 Lester H. Hamilton, Ft. Worth, spoke on "Injection of the Hypermobile Sacroiliac."

Southeast

A special meeting was held on November 10 at which the speakers were Phil R. Russell, Fort Worth, and Louis H. Logan, Dallas.

Reginald Platt, Houston, presented a paper on "Cranial Technic" at the quarterly meeting in Houston on December 8.

A meeting is scheduled to be held in Galveston on March 2.

VIRGINIA
Northern

A meeting was scheduled to be held in Culpepper on February 2.

WEST VIRGINIA
Monongahela Valley

Robert Coda, Morgantown, demonstrated cranial bowl technic at the meeting in Clarksburg on December 12.

WISCONSIN
Fox River Valley

L. D. Thompson, Green Bay, was scheduled to speak on "Hypertension" at a meeting in Green Bay on December 12.

SPECIAL AND SPECIALTY GROUPS

CENTRAL STATES OSTEOPATHIC SOCIETY OF PROCTOLOGY

The officers are: President, James E. Bolmer, Chillicothe, Ohio; vice president, Floyd Magee, Indianapolis; secretary-treasurer, W. M. Walrod, Manchester, Ind.

EASTERN OSTEOPATHIC ASSOCIATION

It has been announced that the program for the meeting in New York City, April 12, 13 will include the following: Beryl E. Arbuckle, Philadelphia, will speak on cranial therapy; H. Earle Beasley, Reading, Mass., will present cardiac problems; W. Powell Cotrille, Jackson, and Robert S. Roscoe, Cleveland, will work as a team to present diagnosis and therapy; Orville D. Ellis, Lincoln, Neb., will talk on feet and shoulders; Julian L. Mines, III, Philadelphia, will present "The New Psychology of Labor and Delivery." Frederick A. Long, Philadelphia, will also appear on the program.

PUGET SOUND ACADEMY OF APPLIED OSTEOPATHY

The following program was announced in advance for the meeting in Seattle on January 22: "Coronal and Lambdoid Sutures," M. A. Hoover, Tacoma; Review of Becker's article, "Osteopathy and Immunity," Orville Herr, Seattle; "Osteopathic Manipulation of the Pelvic Organs," M. D. Young, Seattle; "Observations on Eastern Clinics," R. S. Koch, Olympia; Panel Session, "Soft Tissue Manipulation," led by R. M. Owen, Mt. Vernon.

State and National Boards

ALASKA

Howe Vance, D.O., Juneau, has been appointed to the Basic Science Board of Examiners.

ARIZONA

Basic science examinations March 18. Applications must be filed 2 weeks prior to examination. Address Dr. Francis A. Roy, secretary, Basic Science Board, University of Arizona, Tucson.

COLORADO

Basic science examinations March 5, 6. Applications must be filed by February 19. Address Esther B. Starks, D.O., secretary, Basic Science Board, 1459 Ogden St., Denver 3.

Professional examinations April 1, 2 at Denver. Address C. Robert Starks, D.O., president, Board of Medical Examiners, 1459 Ogden St., Denver 3.

CONNECTICUT

Basic science examinations February 8. Address State Board of Healing Arts, 250 Church St., New Haven 10.

Professional examinations March 4, 5. Address Robert Nicholl, D.O., secretary, Board of Osteopathic Examination and Registration, 5 Field Pt. Road, Greenwich.

DISTRICT OF COLUMBIA

Examinations in April. Address George C. Ruhland, M.D., secretary, Commission on Licensure, Rm. 6150, East Municipal Bldg., 300 C St., N.W., Washington, D. C.

HAWAII

Examinations April 9. Address Mabel A. Runyan, D.O., secretary, Board of Osteopathic Examiners, 2333 C Kalakaua Ave., Honolulu 30.

ILLINOIS

Examinations April 1-3. Address the osteopathic examiner, Oliver Foreman, D.O., 58 E. Washington St., Chicago.

IOWA

Basic science examinations April 8. Applications may be received until time of examination. Address Ben H. Peterson, secretary, Board of Basic Science Examiners, Cedar Rapids.

Professional examinations February 20, 21 in Room 306 at Des Moines Still College of Osteopathy, 722 Sixth Ave., Des Moines. Address Mr. Dwight S. James, assistant secretary, Board of Osteopathic Examiners, 200 Walnut Bldg., Des Moines 9.

MASSACHUSETTS

Examinations March 11, 12. Applications must be filed 2 weeks prior to examination. Address H. Quimby Gallupe, M.D., secretary, Board of Registration in Medicine, State House, Boston 33.

MINNESOTA

Basic science examinations April 1, 2 at Millard Hall, University of Minnesota, Minneapolis. Address Raymond Bieter, M.D., secretary, Board of Examiners in the Basic Sciences, 126 Millard Hall, University of Minnesota, Minneapolis 14.

Professional examinations March 11. Address George F. Miller, D.O., secretary, Board of Osteopathic Examiners, 601 Dayton Ave., St. Paul 2.

MONTANA

Examinations March 5. Address Asa Willard, D.O., secretary, Board of Osteopathic Examiners, Wilma Bldg., Missoula.

NEW HAMPSHIRE

Examinations March 13, 14. Address Deering G. Smith, M.D., secretary, Board of Registration in Medicine, State House, Concord.

OKLAHOMA

The officers of the Board of Osteopathy are: President, C. W. Hammond, Bartlesville; vice president, R. V. Toler, Shawnee; secretary-treasurer, H. E. Beyer, Weleetka. All were re-elected.

OREGON

Basic science examinations March 1, Room 309, Lincoln High School, 1620 S.W. Park St., Portland. Applications must be filed by noon, February 19. Address Mr. Charles D. Byrne, secretary, State Board of Higher Education, Eugene.

RHODE ISLAND

Examinations April 3, 4. Address W. B. Shepard, D.O., secretary, Board of Examiners in Medicine, 911 Industrial Trust Bldg., Providence 3.

TEXAS

Examinations February 20-22 at University of Texas Medical School, Galveston. Address T. J. Crowe, M.D., secretary, Board of Medical Examiners, 918 Texas Bank Bldg., Dallas 2.

WEST VIRGINIA

Examinations March 26, 27 at Daniel Boone Hotel, Charleston. Applications for examination must be in 10 days before examination and for reciprocity 30 days before meeting. Address A. P. Meador, D.O., secretary, Board of Osteopathy, Hinton.

WISCONSIN

Basic science examinations in March at Madison. Address Prof. Robert N. Bauer, secretary, Board of Examiners in the Basic Sciences, 152 W. Wisconsin Ave., Milwaukee.

RE-REGISTRATION OF OSTEOPATHIC LICENSES

March 1—Colorado, $2.00; nonresidents, $10. Address John B. Davis, M.D., Secretary, 831 Republic Bldg., Denver 2.

EXAMINATIONS BY NATIONAL BOARD

The National Board of Examiners for Osteopathic Physicians and Surgeons conducts Parts I and II of its examination on the first Thursday and Friday of each May and December at the six approved colleges. Application blanks may be obtained from the secretary, and the completed application blank, together with a passport photograph and check for the part or parts to be taken, must be in the Secretary's office by the November 15, or April 15, preceding examination. Part III of the examination will be given in specified locations at the discretion of the Board and for the convenience of the applicant.

Examinations in Part I consist of anatomy, physiology, pathology, chemistry and bacteriology. Part II consists of examination in mental diseases, surgery, obstetrics, and gynecology, pediatrics, public health, osteopathic theory and practice. Part III is an oral examination.

Address John E. Rogers, D.O., Secretary, 16 Mount Vernon Street, Oshkosh, Wisconsin.

BASIS OF TREATMENT

The history is not complete if it concerns itself only with symptoms. An attempt should be made to determine the patient's individual threshold to pain, his constitutional and psychic diathesis, and whether the basis of his symptoms is organic or functional.—F. Kenneth Albrecht, M.D., Modern Management in Clinical Medicine, Williams & Wilkins Co., Baltimore, 1946, p. 1.

NO SHORT CUTS IN MEDICINE

Any attempt to streamline the practice of medicine must end in failure; there are no short-cuts in medicine. The foundation stone of every diagnosis remains a careful and thoroughly well-organized case history and an equally painstaking physical examination. The goal is the treatment of the patient as a whole first, and of the disease afterward.—F. Kenneth Albrecht, M.D., Modern Management in Clinical Medicine, Williams & Wilkins Co., Baltimore, 1946, p. vii.

THE FAMILY DOCTOR

The family doctor of today cannot afford to lose himself in the details of symptomatic treatment of bodily complaints but must keep his mind open and his senses alert to discover possible nervous or psychic origins of even such things as proneness to accidents, or to common colds.—G. H. Hoxie, M.D., *Clinical Medicine*, July 1946.

THE FUTURE OF SCIENCE

Only 25 per cent of the 2,000,000,000 people of the earth are properly nourished. Only 500,000,000 ever get enough of the proper food. This is not because of natural limitations. We have the scientific knowledge to provide an adequate diet for everyone if the information were properly applied. The false barriers erected by man himself are responsible. The antiquated social systems, ignorance, stupidity, and fear prevent a large percentage of the peoples of the world from enjoying even the most fundamental of the benefits of science.

* * *

Every place we look in Nature we find problems to be solved. Some can be solved in a short time, while others may take generations. There is nothing in research more important than the time factor. Research must be started years before the results come into general use. Many things, started as much as 100 years ago, have just recently come into use.

* * *

Research is more a process of evolution than of revolution. Progress is slow and occurs in small increments, and long periods of time are involved in new discoveries. The time to lay the foundation for future developments is now.—C. F. Kettering, *Science*, Dec. 27, 1946.

Extracts

WHAT AILS OUR VOLUNTARY HEALTH AGENCIES*

By *Louis I. Dublin, Ph.D.*
Second Vice-President and Statistician, Metropolitan Life Insurance Company, Chairman, Committee for the Study of the Voluntary Health Agencies, National Health Council

The voluntary health movement and the welfare movement, of which it is a part, are the glory of the American people. Nowhere else in the world have these services flowered to such extent or in such variety. They are truly an extraordinary expression of the good will and neighborliness of the American people, their generosity and their genius for organization. Getting together and helping others is traditional among us. In the course of the last 40 years, more than 20,000 voluntary health organizations have been launched. They are national, State, and local in their operations. Virtually every serious disease and health problem has been the subject of their attack, including tuberculosis, cancer, heart disease, the children's diseases, maternal welfare, and a host of others. Hundreds of thousands of our leading citizens are giving of their time and substance as board members to serve their favorite organization. The public has opened its pockets as well as its heart. Virtually everyone is a supporter of one or more such societies. Not less than $100,000,000 are contributed each year to meet the health expenditures of voluntary agencies concerned, in whole or in part, with health promotion. The voluntary health movement is big business which has become a permanent and vital part of our national welfare machinery.

Yet despite its size and importance, the voluntary health movement has until recently not been subject to critical review. It has been accepted and supported with little questioning, just as our philanthropies always have been. The need seemed so obvious and pressing and the type of leadership directing the activity carried such great weight that few questions have been asked. All has been assumed to be well with our national impulse to relieve suffering. As a result, little that is authentic has been available to indicate how well the work was being done or how completely the field was being covered. No one could tell whether all the local voluntary health societies were needed or why there were so many of them, so specialized in their programs and goals. Would not one large and well-supported local society serve the public interest better? How about the direction and leadership? Were they adequate to the task? How rapidly were the societies adjusting themselves to the changing times and needs? To what extent were the efforts and expenditures contributing to the well-being of the communities?

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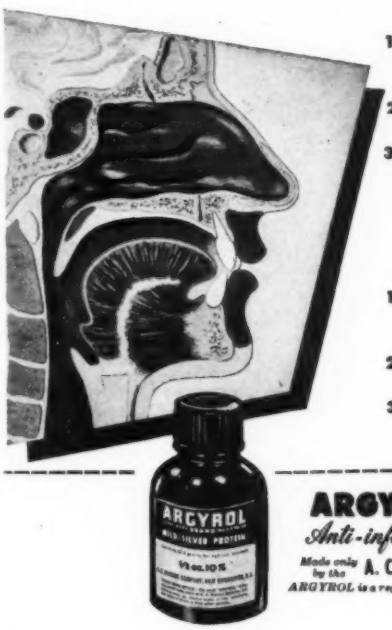

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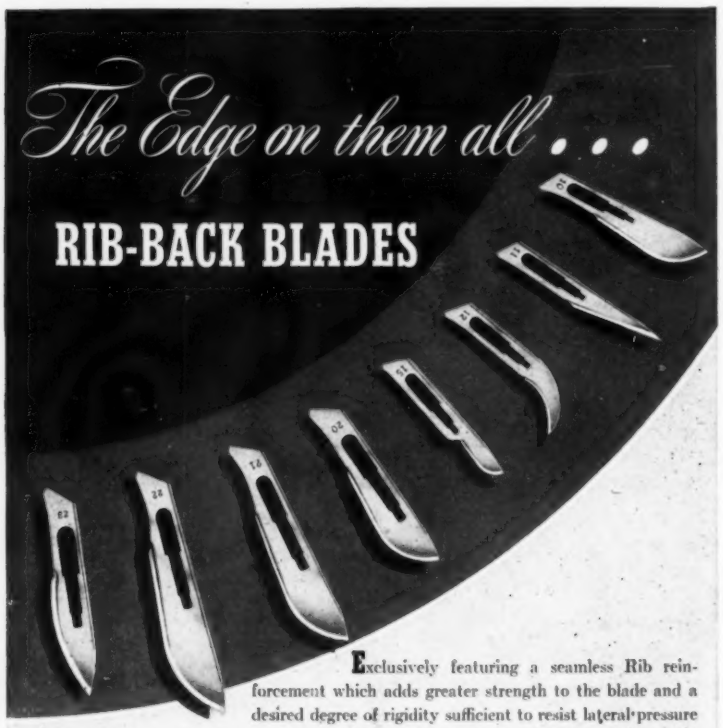
Obviously, the time had come for a careful study to find the answers to these and related questions.

Such a study has just been completed. In 1941 the National Health Council, with the generous support of the Rockefeller Foundation, launched a three-year survey under expert direction. Societies in 65 cities and 29 States were visited, from Maine to California and from Washington to Georgia. The samples covered 569 voluntary agencies and 143 official agencies, and entailed 1,100 personal interviews with directors, board members, health officers, and other interested parties. The facts and figures gathered in these interviews and in hundreds of supplementary questionnaires have been classified and analyzed. The final report of the investigation is now available.* I believe that the public will wish to know how well its trust in and generous support of the Roll Call of the American Red Cross, of the Christmas Seals of the tuberculosis movement, of the March of Dimes of the National Foundation for Infantile Paralysis, and of the many other recurring specialized appeals have been justified. It is now possible for the American people to know, in broad terms, the assets and liabilities of the organizations which they have been supporting so generously over the years.

They are very real assets. The voluntary health agencies have been leaders in a broad movement which, over the last four decades, has educated the American people in what pertains to the

*"Voluntary Health Agencies—An Interpretive Study," by Selskar M. Gunn and Philip S. Platt. An inquiry conducted under the direction of a committee of the National Health Council, Louis I. Dublin, Chairman. Ronald Press, New York, 1945.



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public health. The National Tuberculosis Association, with its thousands of affiliates in every nook and corner of the country, has brought home to the people the elementary facts with regard to tuberculosis—how it spreads and how it can be controlled. The result has been a great and resounding success. Tuberculosis has been pushed down from first to eighth place among the causes of death. In many parts of the country it is now a relatively minor problem. Similarly, the American Social Hygiene Association has, with both wisdom and moderation, informed the people of the heavy toll exacted by the venereal diseases, and has scored signal victories, especially in protecting the men in our armed forces. The cancer control movement has taught the American people, particularly the women folk, to watch for early symptoms of the disease and to take advantage of early medical care. It has also stimulated valuable research in this difficult field.

Then there is the National Foundation for Infantile Paralysis, which in its short career has inaugurated important research in the field of virus infection, and which has made great strides in perfecting the care of the victims of paralysis and in making such care available on a large scale. The public health nursing societies have been very successful. Beginning in the early nineties as rather weak and tentative services to the poor, they have spread to virtually every community, and are now rendering valuable services to all classes. A noble profession has been created—public health nursing. The American Red Cross, with its 3,700 Chapters, has in many ways led the field. It has made public health nursing available to many communities. It has helped to soften the shock of disaster. It has educated the American people in safety and in the vital facts of personal hygiene. Our voluntary health societies have helped to create many of our official health services, to increase their budgets and have generally raised the levels of such services. Altogether, we can all be proud of the positive contribution of our voluntary health movement.

But our report also discloses serious shortcomings. It would be a grave disservice to the health movement, if through silence or equivocation we helped to lull its supporters into complacency. The study which has indicated the virtues and contributions of our voluntary health work has also disclosed much that needs to be remedied. The very freedom and spontaneity with which the voluntary societies have sprung up is also the source of their greatest weakness. In the nature of the case, there has been little planning in the life and health conservation campaign as a whole. Voluntary societies have often been organized to undertake what was already being done by others; too frequently, they have emphasized the special interests of their sponsors and ignored or minimized what may have been much more pressing and important.

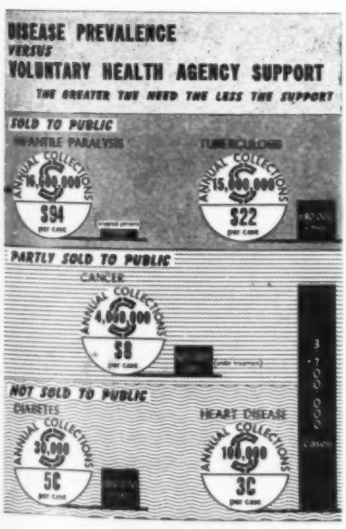
A disturbing characteristic of our voluntary health movement is the undue specialization of the societies. All too often they are organized to serve only a small sector of the entire health field—be it child welfare, tuberculosis, mental hygiene, etc. One can very well understand how this situation arose. When these societies were springing up, new discoveries in the specialized fields of medicine stirred the imagination and won support for some particular group of sufferers. But, obviously, such haphazard generosity cannot continue as a permanent program. The inevitable result of such multiplication of societies is the impoverishment of each, competition for support, and the confusion of the public. Even in some small cities and counties there are found four or five independent organizations, each concerned with its own specialty and each making its own bid for favor, instead of cooperating toward common ends. Sometimes there are several organizations operating in the same narrow field. Thus, the National Organization for Public Health Nursing is constantly striving to amalgamate several small nursing societies in a locality into one strong and representative organization. Narrow specialization, with its wasteful multiplication of weak societies, has proved a major defect of this entire development. The community has paid the price of such bungling. Many small societies with scant resources are rarely able to employ skilled executives. Strong, unified health agencies are in a much better position to obtain good professional direction and to arrange for adequate planning and coordination.

Another serious limitation of the voluntary health agencies has been their reluctance to adjust their programs to the marked changes which have occurred in their communities. Some have developed vested interests in their special field, as if keeping their agencies going was their chief objective. The fine enthusiasm of the pioneers who organized to meet a serious health problem has in some instances degenerated in the course of years to an effort to preserve their institution intact rather than to serve a public need.

This criticism applies to a sizable sector of the voluntary health movement, and I regret to say, to many local societies affiliated with the National Tuberculosis Association. The national organization is one of the soundest of the voluntary health agencies. It has a history of fine accomplishment. No one should minimize the part that it has played in bringing about the extraordinary decline in tuberculosis. As might be expected, the National Association has prospered through increasing public support. Last year, close to $15,000,000 was raised through the sale of Christmas Seals, of which 5 per cent went to the National Association and the rest to the State and local societies. Income has been on the upgrade, and I have no doubt but that a continuation of the type of publicity issued by the Association, coupled with the abounding good will of the American people, will result in raising increased sums.

The problem is now not so much how to raise funds, but rather how to spend them usefully. Many of those responsible for the policy of the Association, especially as regards local programs, are reluctant to admit that the tuberculosis problem has been largely solved in the United States as a whole. The annual drive for funds is predicated on the assumption that the control of tuberculosis is still the major health problem of the nation. But the organization, and especially the locals, fail to tell their public that over large areas of the country the disease is now definitely under control; that the State and local health departments of the country have taken over much of the load previously carried by the voluntary societies; and perhaps most important, that the United States Public Health Service now has an excellent tuberculosis division with a generous budget to help the States carry on the final phase of tuberculosis eradication. The tuberculosis societies are in too many instances still capitalizing on the old fear which people have of the disease—a fear which now has little basis in fact.

To be sure, there are wise men in the movement as well as diehards. The State Charities Aid Association of up-State New York, which is an authorized representative of the National Tuberculosis Association and which is very successful in raising a large annual subscription through Christmas Seals, years ago broadened the base of its operations and included, in addition to tuberculosis prevention, a wide range of activities in the public health field—venereal disease control, better nutrition, the prevention of diphtheria, and not of lesser importance, cooperation with and stimulation of the official health agencies of the whole State. Mental hygiene is also advanced, but with other than Seal sale funds. This organization has an



From the *Survey Midmonthly*, October 1945

Sums collected represent actual or estimated receipts during the latest calendar or campaign year by all voluntary health agencies in the particular field in the United States. Figures on disease prevalence are based mainly on the National Health Survey, 1935-1936.

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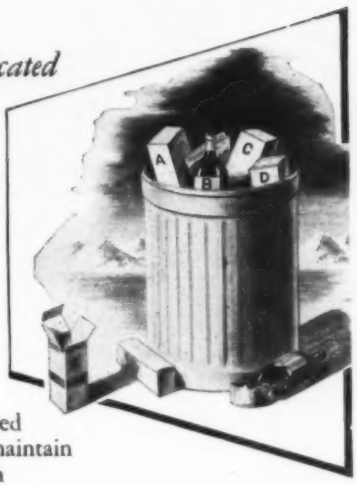

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excellent and balanced program and everyone benefits therefrom.

There are also other tuberculosis locals that have adjusted their activities to current health needs, while continuing their effective tuberculosis control. But by and large, the Directors of the National Tuberculosis Association have been cool to the inclusion of these new activities. There is a sharp internal conflict within the organization between those who would stand pat on tuberculosis work and those who would widen the approach to a well-balanced health program. I am confident that the standpatters are riding for a fall. But in their stubbornness they may do great injury to a first-rate organization with a fine history of public service and with extraordinary possibilities for becoming the acknowledged leader in a unified voluntary health movement. It is encouraging to note that at its June meeting the Executive Committee of the National Tuberculosis Association opened the door a little wider for local associations to engage in activities other than tuberculosis control. I am confident that the public, through the purchase of Christmas Seals, even in increasing measure, would be delighted to support a nationwide organization devoted not only to the final phase of the antituberculosis campaign, but also to the control of other diseases which menace the health and welfare of the people.

Another serious difficulty with our voluntary health movement is that too often there is little relationship between the size and importance of a health problem and the money and services available for the attack upon it. A striking illustration of this disparity between need and resources is the lavish provision for the fight on infantile paralysis and the almost complete neglect of the campaign against heart disease, America's number one health problem. The National Foundation for Infantile Paralysis under the leadership of Basil O'Connor, is one of the miracles of recent health history. In the short period of eight years this organization has firmly established itself through active chapters in communities throughout the country. In the last campaign the total receipts of this vigorous organization were more than $16,500,000 of which half remained in local hands and the other half went into the national treasury.

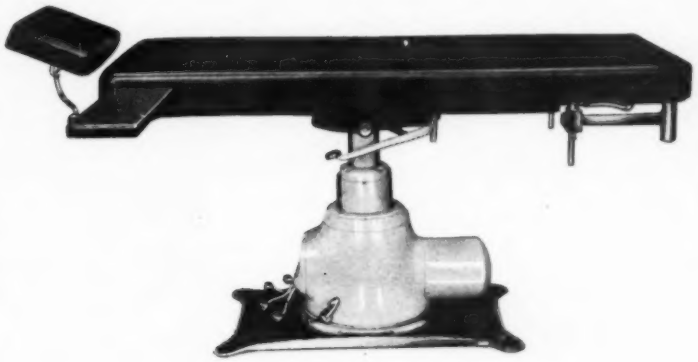
Despite its many useful contributions, the Foundation is not too popular in the voluntary health field. It is not difficult to understand why most societies that struggle to raise their meager budgets year after year, look somewhat askance on the newcomer that literally runs away with the money. And there is some justification in the critical attitude of its competitors for public support. After all, infantile paralysis is one of the less common diseases. Even in epidemic years, there are only from 15,000 to 18,000 cases in the whole country, and less than 2,000 deaths. Compared to such conditions as heart disease

and other vascular diseases, infantile paralysis is a minor problem. Yet the Foundation is able to raise as much money each year as all other national societies combined, with the exception of the American Red Cross and the National Tuberculosis Association. It has moreover accumulated large funds because of the difficulty of spending productively the amounts received. Is the answer that the other societies should learn better the devices of publicity and showmanship, and raise equal and even larger sums, in order to meet their budget requirements? Will the American people support each of the specialties in this lavish fashion? Or does the answer lie rather in such overall planning as to make available to each of the health activities resources compatible with true need? These questions will ultimately be settled by the public, which pays the bill. But how soon will Mr. and Mrs. Public take the problem under advisement and make the necessary decisions?

These are a few of the limitations which weaken the voluntary health movement. They reflect our national approval of free initiative and our chronic resistance to planning and to coordination of effort. This is equally true at local, State, and national levels. I must not give the impression, however, that no progress in the direction of better planning has been made. Some planning has had its effect, but it has not gone far enough.

Locally, the need for coordination has been recognized for a good many years. Since the end of the first World War the need for a clearing house for those who were working in the local voluntary health field became manifest. As a result, there have developed the Health Councils and Health Divisions of Councils of Social Agencies. Their purpose is to bring together the representatives of the various health societies for common planning, for eliminating duplication, for speaking as one voice to the people who support them. This movement has grown apace and Health Councils or their equivalents operate in many of our big cities. But in a larger number, they do not. New York City is a glaring example of a community with an array of societies which do not work together. Its Health Commissioner has sounded a clarion call for a Health Council with which he can pool resources and plan a coordinated program. The problem is even more acute in many of our smaller cities and towns. Duplication of effort and lack of coordination are all too frequent.

There are a few splendid demonstrations of what can be accomplished through well-organized Health Councils or Health Federations. I have in mind two examples, both in Ohio, the Cleveland Health Council and the Cincinnati Public Health Federation. In these cities the various health organizations are closely knit. Their able executives are responsible for a fine administration



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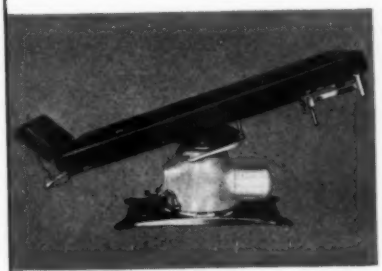

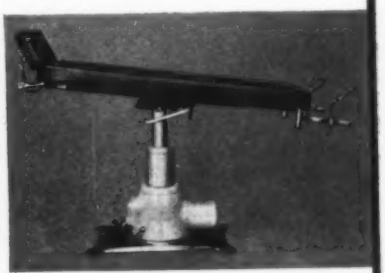

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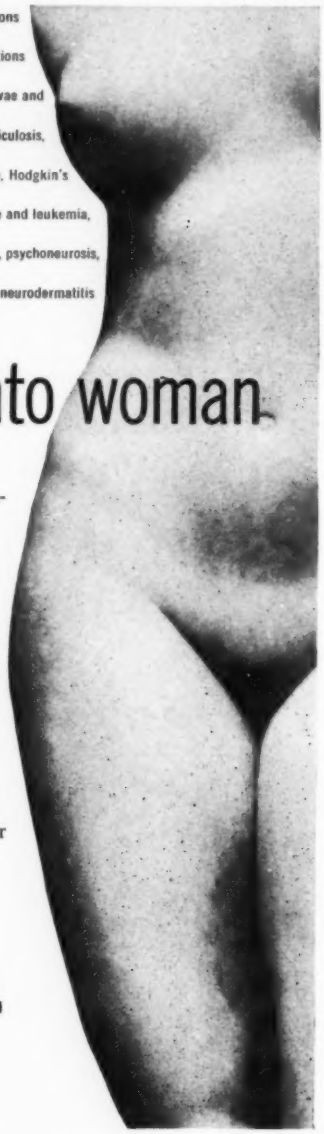

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of the various aspects of a well-rounded health program. Not the least of their achievements is the splendid cooperation which has developed with their local health departments. In many other communities the health societies, even if less tightly bound, develop plans in an over-all program and thus eliminate duplication; and in a sizable fraction, they go as far as to affiliate with the Community Chests and Councils, through which funds are obtained in a single financial appeal.

The greatest need for over-all integration and planning in the voluntary health field is obviously on the national level. This was fully recognized a quarter of a century ago when the then leaders in the health movement, including George E. Vincent of the Rockefeller Foundation, Lee K. Frankel of the Metropolitan Life Insurance Company, and Livingston Farrand of the American Red Cross, launched the National Health Council, which was hailed as a most important step in the developing health program. Ten national organizations joined the Council. Several of the Foundations agreed to contribute generously for its support over a period of years. A qualified public health administrator became the Executive Director, and a branch office was opened in Washington with a representative who followed national legislation and studied the diversified aspects of public health in the National Government.

The immediate goals envisioned by the founders of the Council were indeed modest. It was hoped that the member societies housed under one roof in New York City would get better acquainted, discover the similarities of their problems, and find opportunities for common planning. Certain economies would undoubtedly follow. At least, joint services could be set up. There was also in the minds of the leaders the hope that these steps would lead to a closer coordination of national health work, toward a consolidation of some of the agencies, and even toward a unified financial appeal. The possibilities were many, although no specific promises were made.

The National Health Council, I regret to say, has not measured up to the high hopes of its founders. It is true that many joint undertakings have been developed; but of these, all that has remained is a common service of a mechanical and clerical nature which expedites the operations of the constituent societies. The several attempts to bring about unity of planning, of joint programing, and of united field operations, were one after another discontinued either because of the lack of financial support, inadequacy of professional leadership, or because of other difficulties inherent in a restricted venture of this kind. Not the least problem has been the persistent refusal of some of the members to delegate power to the national organization. A great opportunity has been missed.

The leaders of the health movement today are very conscious of this failure. In fact, since the completion of the present study brought the situation to a head, the member agencies have agreed that the Council must be strengthened. It is once more planned to realize the potentialities which were conceived by the founders. A national committee has been appointed, under the strongest civic leadership, to canvass the current situation and to present a program which may stimulate and give direction to the voluntary health movement. Immediately, the plan calls for finding adequate and continuous support for the Council in order to obtain the highest type of executive direction, and to organize a professional staff to serve health societies throughout the country to bring about better organization and coordination of effort on the local level. In addition, the plan empowers the Council to explore the possibility of developing a national program of popular health education. A vitalized Health Council today could so effectively coordinate effort, national and local, that the American people would respond with new enthusiasm for the whole program.

The local health agencies can, on their part, do much to increase their own effectiveness. I have already indicated the line of progress through the union of weak societies to form stronger units, and through the organization of health councils and health federations. It is also essential that they take stock of their lay leadership. It is clearly indicated by the current study that the time has come for Boards of Directors to scrutinize their membership and to eliminate the inactive and the unpro-

ductive. All too often, a very few members of the Board have run the show. Tenure should not be guaranteed for life and should not be passed down through inheritance. Such Board membership is a high civic responsibility and should be shared by those who are qualified to give sound and able direction to these organizations. It is highly desirable today that Boards bring in new blood, representative of all classes of the community. This will further the democratic process.

The executive officer of the voluntary health society is, in the last analysis, the key to its success or failure. Our study points up the urgent need for the training of a large body of professionally qualified executives to administer these societies. We have created thousands of units, but have not taken advantage of the opportunity to build up a professional corps to make them effective. To attract those who would provide wise leadership, good judgment and adequate skill, it will be necessary to raise salary levels. It will also be necessary to cooperate with schools of public health, to bring the existing personnel to higher levels of skill, and to provide adequate facilities for the training of new people. With Boards of Directors vitalized, and with executive officers competent to administer, the effectiveness of the voluntary health organizations would be assured. Just one other check would be needed—critical review and frank evaluation. Our efforts should not be above continuous study and appraisal of what is accomplished. The personnel and services rendered the community must justify themselves. Such regular check-ups should be supplemented at longer intervals through study by outside experts. There are few agencies which could not improve and make more effective their services through such evaluations.

No discussion of the voluntary health movement would be adequate without reference to the American Red Cross. This organization is the world's leading welfare and health agency. In our country it overshadows the rest of the field. During the war period it has been outstanding in its services and it has deserved nothing but praise for the aid and comfort it has brought to the armed forces and to the people at home. The American Red Cross will, of course, continue to function as in the past. It is encouraging to know that there is no thought in the present administration to skeletonize the agency with the return of peace, as was done at the close of the first World War. Under its new leadership, surveys are being made to evaluate the organization and its accomplishments, and an extensive peacetime program is being prepared. There is growing evidence of an acute appreciation of the potentialities of public service in the 3,700 Chapters, 6,000 branches, and a membership of 40,000,000. The National Red Cross and its Chapters can, through a well-conceived national health program, bring great benefit to the American people and become the driving force in the integration of effort which is so much needed at the present juncture.

A great opportunity thus awaits this organization, representing as it does the good will of virtually every family in the country. It can set a new standard for volunteer service throughout the land. To accomplish its highest purpose it must eliminate criticism, fairly just, that it has in the past been led by the socially elect and that the Chapters have been too often loath to cooperate in local projects with other health and welfare agencies. Fortunately, there is emerging a new spirit in Washington, as well as in the local Chapters. Those who now give direction to policy realize the unique position of the Red Cross and recognize the need for a broader base of leadership from every section of the community. Democracy is making itself felt in the Red Cross as throughout the land. Already we see evidences of this new spirit in many locations. Leaders of labor are being welcomed into Boards of Directors. Efforts at coordiination of service with other local voluntary organizations are bringing them closer together toward the solution of common welfare problems. Association with neighborhood health centers and local health committees is drawing the Red Cross closer to the people. We are all discovering that the public welfare is the concern of all.

Finally, it is hoped that the current discussions among the leaders will result in a new and more effective method of financing the voluntary health work of the country. More and more, ways

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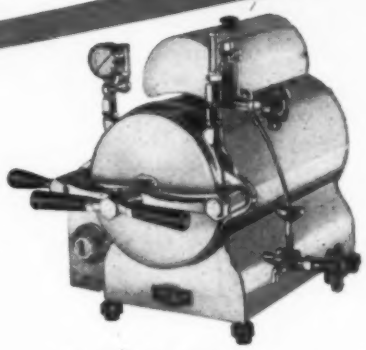

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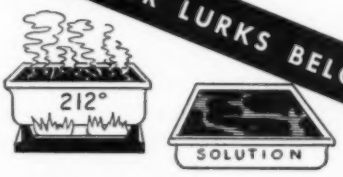

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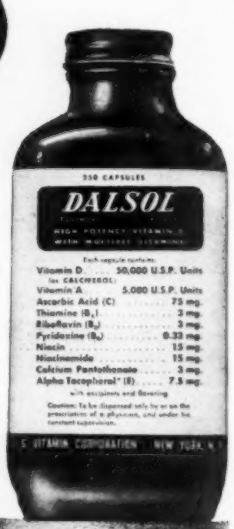

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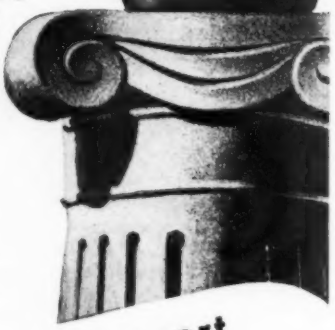

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must be found to support the health program, national as well as local, without the present competition and duplication of appeals for funds to which the public is now exposed. It should be possible to retain, and even to extend, the operations of such agencies as we have developed during the war period, and which have shown us how readily the American people will support in generous fashion all the welfare needs of the country. We must in particular salvage for peace the machinery of the National War Fund and of its Chest affiliates. Through such an agency the American people will, I believe, gladly support their health and welfare organizations through one appeal. This should at least serve to finance those organizations other than the American Red Cross, the National Tuberculosis Association, and the National Foundation for Infantile Paralysis, which have developed effective financing of their own. It is probable that, at the beginning, such a unified appeal will not yield as large amounts as are now raised in a multiplicity of drives. But there are definite and desirable offsets. Substantial savings should result and the public at large will thoroughly appreciate relief from multiple appeals for funds. Before too long, a single well-sponsored drive should bring increasing support, sufficient to guarantee an effective administration of health work not only local but Statewide and national. It is not too much to hope that as the wisdom of working in close coordination is demonstrated, the National Tuberculosis Association, the National Foundation for Infantile Paralysis, and perhaps even the American Red Cross, will combine forces with the rest to become one united association, with branches and services everywhere. This would prove a worthy partner of a coordinated and well-supported health department in the Federal Government.

The voluntary health agencies of the country are at the crossroads. They have grown rapidly in number and in resources. They must now give increasing thought to their effectiveness. Now that peace has returned, the time has come when they must reorganize for the tasks that lie ahead. From now on a more critical public will demand that its funds be used wisely and economically, that the efforts be directed by skilled hands, and that there be team play among all voluntary societies and with official agencies. The keynote will be united planning. The challenge must be met. I expect that the voluntary health movement will, as in the past, find ways to adapt itself to new conditions—pioneering, demonstrating, stimulating, and serving as the coordinating force in this essential activity in our American life. I believe that a great future awaits the voluntary health movement in our country.

CONFLAGRATION TOLL AT PEAK IN RECENT YEARS

It is disappointing that for at least a third of a century little or no progress has been made in reducing the mortality from conflagration. In fact, during the war years the number of deaths from this cause reached a record high. In 1944, the latest year for which official nationwide figures are available, more than 3,000 persons in the United States were fatally burned, trampled to death, suffocated, or otherwise mortally injured in conflagrations.* This number is almost twice that of about a decade earlier. Although more recent data relating to the many millions of Metropolitan Industrial policyholders indicate that the loss of life from this hazard decreased somewhat in 1945, the figure for that year was probably still one of the highest in the last three decades.

The unfavorable experience during the war years was due, in part, to the unusually heavy toll of life taken by each of several large fires. The most disastrous of these was the conflagration in a Boston night club late in November of 1942, in which 492 lives were lost. The circus fire in Hartford, Conn., in July 1944 took the lives of 168 men, women, and children, and only three months later a gas tank explosion and fire in Cleveland, Ohio, caused 130 deaths. It was only a few years earlier, in April 1940, that 208 lives were lost in the conflagration which swept through a dance hall in Natchez, Miss.

*Under this heading are included deaths resulting from burning buildings and from forest and prairie fires. Deaths in burning automobiles, airplanes, ships, and other vehicles, and deaths from mine fires and explosions are assigned to other titles.

Following these catastrophes, a number of cities throughout the country have increased their supervision and have tightened the fire regulations for public eating and amusement places.

While a conflagration in a public place is a particularly serious threat to life, actually the bulk of the deaths year after year—about four fifths of the total—are the result of fires in private dwellings, apartment houses, tenements, and rooming houses. Hence, the problem of reducing the death toll from conflagration lies mainly in the prevention of fires in the home. In this connection, attention should be directed to the special hazards growing out of the current housing shortage. A goodly number of houses long unoccupied and in poor repair are now being used by families who cannot find more suitable shelter. These dwellings frequently are little short of firetraps. In many of these places and in households where several families are living together, temporary cooking and heating facilities have been installed and their use constitutes an additional fire hazard. Moreover, because of the urgency for housing, coupled with shortages of essential materials, for a time the temptation will be great not to insist upon the usual standards of contruction, with the result that a very considerable number of new homes may not be properly safeguarded against fire.

It is apparent from the foregoing that the American people individually should be more alert now than ever before to the hazard of conflagration, and should take suitable precautions to prevent loss of life from this cause in their own homes. This warning is particularly pertinent as the cold weather months approach, since it is in the winter season that the mortality from conflagration reaches its maximum. The Yuletide holidays call for special caution because of the hazards incidental to the illumination and decoration of Christmas trees. Lighted candles constitute a serious conflagration hazard and should never be used. The illumination of the tree can be both attractive and safe by the use of approved electric wiring and lights, and by the use of decorations made of nonflammable materials. Moveover, inasmuch as the tree itself is extremely flammable, it is desirable as a fire prevention measure to dispose of it within a short time after the holidays.

Young children and older people are the chief victims of conflagrations. Children under 5 and persons over 65 account for more than two fifths of the deaths annually from this cause, although these two age groups constitute only one seventh of the total population. Clearly, the young and old are not able to take care of themselves in these emergencies, the major proportion of which occur at night. Colored persons have higher death rates than white persons, especially at the young and old ages. This is partly because a greater proportion of the colored live in substandard homes, and partly because relatively more colored children are left without adequate supervision while parents are out working.

A comprehensive fire-prevention program involves the architect, the builder, the building superintendent, the fire and building departments, and a number of other agencies. But the individual members of the household have an important, perhaps the most important, part to play in the prevention of fires. Many lives would be saved if people would take the simple precaution to see that the heating system, electrical cords and appliances are in safe condition, and if they would be more careful in using matches and see to it that children are kept from playing with them. Moreover, many lives are lost each year because of careless smoking.—*Statistical Bulletin*, Metropolitan Life Insurance Company, November 1946.

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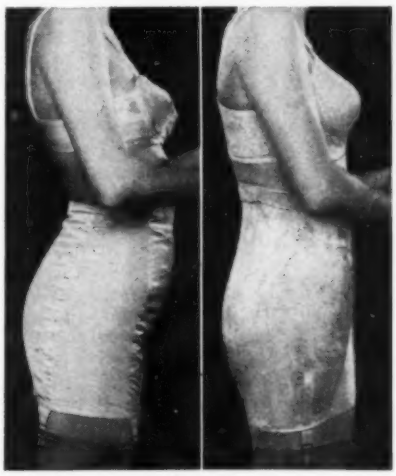

***At left*: Woman with lordotic type of posture without proper support. *At right*: Same woman in a Spencer Body and Breast Support designed especially for her after a description of her body and posture had been recorded—and 25 measurements taken.**

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***Perry, Layne, D.O.: *Faulty Posture As An Important Cause of Some Types of Anorectal Pathology*: Osteopathic Profession: 14 : 28-52, (Oct.) 1946.**

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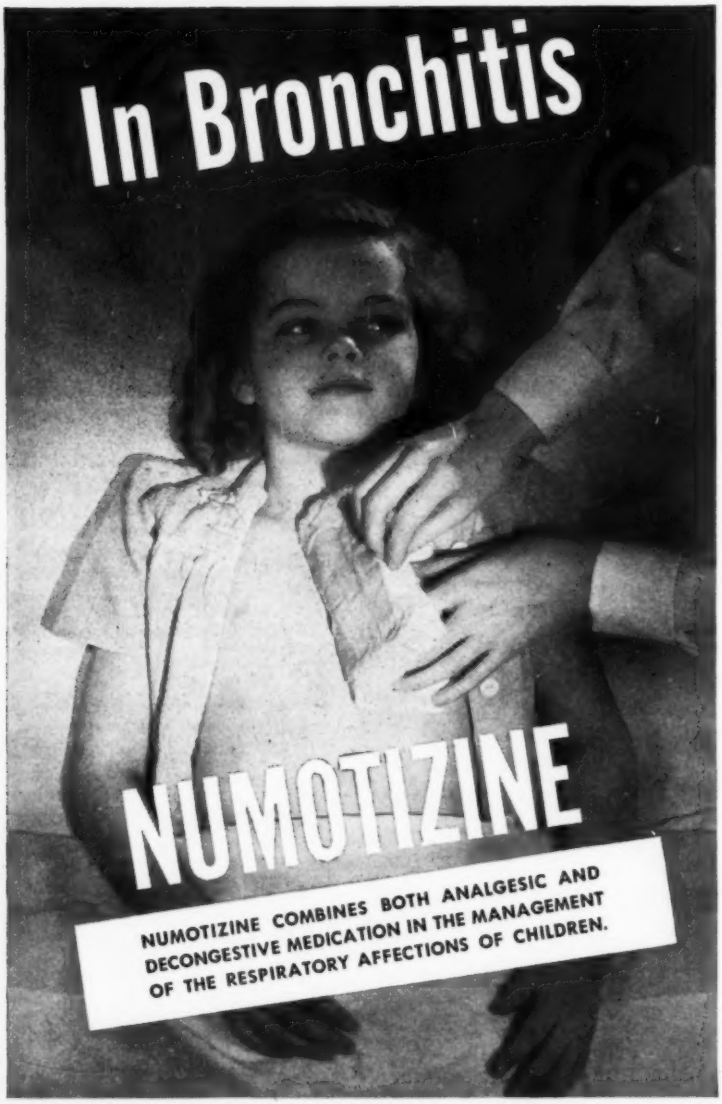
THE GOOD NEWS OF DAMNATION*

Dr. Robert M. Hutchins
Chancellor of the University of Chicago

The good news of damnation is the news of the atomic bomb. You will say that it isn't even news, and one of the most frightening things about the present situation is that to judge from the papers and the radio you will be right. A year and a half ago we all ran for the nearest exit, shouting, "There must never be another war; we must have world government right away; save civilization"; and day after day the agencies of mass communication pointed

*Presented before the Publicity Club of Chicago, January 8, 1947. Dr. Hutchins is on leave from his post as chancellor of the University of Chicago to serve as chairman of the board of editors of the Encyclopaedia Britannica.

[Comments on this article may be found on the editorial pages of this issue of THE JOURNAL]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out that we could now destroy ourselves in so cheap, spectacular, swift, effective, and horrible fashion that at last something really significant would have to be done about introducing law into the world and reforming the peculiar animals who inhabit it.

But apparently you can get used to anything. We have now returned to our normal occupations and preoccupations. We have lately been absorbed in Christmas shopping, New Year's celebrations, the coal strike, the wickedness of the Russians, the fate of Tweedledum and Tweedledee, by which I mean, of course, the Democratic and Republican parties, and the prospects of reduced taxation. We have succeeded in forgetting what we all know, that the atomic bomb hangs over us and that it alters the whole outlook of life in America.

Let me tell you what we all know. (1) There is no defense against the atomic bomb. The only defense is not to be there when it goes off. (2) In a war in which both sides have atomic bombs the cities of both sides will be destroyed. (3) Since one to ten atomic bombs can reduce any city in the world to ashes, it will not help us much to have more atomic bombs than an enemy country. (4) Superiority in land, sea, and air forces will mean little. The atomic bomb is a weapon directed against civilians. The economy which supports the military can be wiped out before the military can get started. (5) Our monopoly of the atomic bomb cannot last more than five years.

It is obvious, though perhaps not so well known, that future bombs will be cheaper, bigger, and better. It is a fair guess that greater emphasis will be laid in the future on the production of radioactive rays than on the production of a blast. The radioactivity from Bikini reached the United States in detectible strength in the space of one week. If it were possible to increase the radioactivity one hundred thousand or a million times, an enemy could make the United States uninhabitable by dropping a bomb or two off the Pacific Coast. A bomb of the kind we have now, planted at the bottom of New York harbor, might cover the city with lethal spray if it exploded when the wind was right. Some indication of the present power of the radioactivity developed by the bomb is given by the second Bikini test, where ships were contaminated within a radius of a mile and a quarter. The Joint Chiefs of Staff Evaluation Board said: "The contaminated ships become radioactive stoves and would have burned all living things aboard them with invisible and painless but deadly radiation."

Now, thanks to the scientists, the United States is vulnerable from every quarter of the globe. We are in the position of the little boy who asked Santa Claus for a volcano—and got it. Dislocations in Persia, Manchuria, or the South Seas may at any moment involve this country, and in an era of supersonic radio-guided missiles and atomic bombs which may be planted by enemy agents, involvement in very slight dislocations may lead to the destruction of all our cities. The United States now has no choice. It is involved with the rest of the world whether it likes it or not.

And it is involved in a very unfortunate way. The gift of science and technology to our country has all the aspects of a volcano in the home. We have the most to lose, and we could lose it more quickly and completely than any nation with which we are likely to be at war. If you were doomed to die by starvation, as half Europe and Asia now seem to be, death by the atomic bomb might be a pleasure. Our cities are more densely populated and more important to the economy than those of Russia. Our form of government requires us to give long notice that we are about to go to war. It is not too much to say that before the atomic bomb no country or combination of countries could have hoped to conduct a successful attack on the United States. Our scientists and engineers have put in the hands of our potential enemies the means of our own destruction.

Agreements for the international control of atomic energy, which are absolutely imperative, will merely guarantee, if they are effective, that the next war will end with atomic bombs instead of beginning with them. If these agreements are ineffective, they will simply increase the value of the element of surprise which the atomic bomb has added to the arsenal of the aggressor.

But let us suppose in some way or other we avoid another major war. What is going to happen to us then?

The use of atomic energy for heat, power, and light is just around the corner. There are no technical and scientific difficulties of any consequence in the way. If the Army had acted on the proposal of the University of Chicago when it was made, I believe that out in Palos Park we could have put on a large-scale demonstration of the use of atomic energy for commercial power by last May. The Army finally decided to conduct this experiment at Oak Ridge, and I have no doubt that it will have succeeded by next May.

We cannot expect atomic energy to replace at once the ordinary sources of industrial power in existing industrial areas. But I would call your attention to the fact that the cost of transporting the materials from which atomic energy is made is negligible. This means that the location of communities and industries need no longer be determined by the location of sources of power. You can start industries or communities—which, incidentally, could be free from smoke—anywhere in the world, on the polar ice-cap or in the heart of the Congo. When we consider what the location of coal mines and water power has meant in the location of industries and cities throughout the world, we can understand the proportions of the industrial and social revolution which atomic energy is about to usher in. We may expect the rapid industrialization of parts of the world plentiful in raw materials but lacking in coal, oil, or water power. We may expect the development of new industries and new communities. This will be accompanied by the disintegration of old communities, particularly those whose chief reason for existence is their proximity to old-fashioned sources of power. These dislocations will be accompanied by great insecurity. An economy based on work and scarcity will be giving way before one based on leisure and abundance. The birthpangs of the new economy are likely to be so painful, the problems of management are certain to be so enormous, that the difficulties of citizenship, which we have been able to take very lightly, will seem too much for us. We shall turn to the Government to save us. Only the Government will seem large enough to cope with a crisis of such dimensions. We may even hear that we need a Leader. Nobody proposed that atomic energy should not be a government monopoly. The only question was which branch of the Government should monopolize it. The chief problems of the Government will be security and boredom. And so the world comes back again to bread and circuses.

The President of Harvard has suggested that our appetite for circuses is unlimited. He has intimated that we don't need to worry about the unbounded leisure which the atomic age will bring—we can go to the ball game. I used to do that myself every Saturday afternoon in the fall, but for some reason or other I finally got tired of it. As I approach the age of 48, I can testify that all forms of recreation eventually lose their charm. As we now save children from infants' diseases in order to put them in insane asylums when they grow up, so we have cut working hours from 60 to 40 and produced the comic book as the symbol of our cultural epoch. When in the atomic age we can get our living with about the same effort and in the same time as the fortunate savages require to pick their daily diet from the bread-fruit trees, what shall we do with ourselves then?

You may admit that this is news, and news that ought to be on page one every day; and you may with some propriety ask, "Why is it good?"

In theology the utility of the doctrine of damnation is that it may frighten us into doing what we know we should be doing anyway. We know we ought to behave ourselves; but it is not always pleasant to do it. The news of damnation tells us, in dramatic, spectacular fashion, how extremely unpleasant it will be for us if we do not do it. We have known at least since the time when Napoleon invented total war that war would have to be abolished. We could see that nationalism is obsolete and that internationalism was out of date even before we tried it. Now we can have no excuse for failing to understand that our hope is in world justice, world law, world government, a world state. The event of August 6, 1945, makes plain to the dullest wits that it is one world or none at all.

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It has long been clear that the advance of technology was making it possible to simplify industrial operations to the point where they could be conducted by twelve-year-old children, and very few of them. The steady decline in the hours of labor has been going on for a generation. The war has simply concentrated fifty years of technological advance into five, and has thrown in, for good measure, the discovery of a new source of power that will enormously accelerate a process that was already under way.

The principal aims of education in this country have been to supply vocational success or social standing, although it has been clear that education could make no direct contribution to vocational success and that where all children go to school, going to school does not distinguish those who go. Where everybody is somebody, as Gilbert and Sullivan pointed out, nobody's anybody. We have thought of education as an affair for the young—it has been regarded as a disease like whooping cough or measles—having had it once you need not, indeed you cannot, have it again. And the result has been that those things which only adults can understand because only they have had the experience to understand them, we have never learned, and they are the most important things of all. Our increasing leisure has been wasted on futile efforts to stave off boredom by spending more and more money trying to get somebody to amuse us. Yet with the machines which we now have to work for us we have as much leisure as the Greeks could have had, and we could have a civilization as glorious as theirs, and more enduring.

Unfortunately the good news of damnation arrives a little late. After centuries of misconduct we now have about five years in which to learn how to behave ourselves. But learning how to behave ourselves is the only defense against the atomic bomb. Other civilizations were destroyed by barbarians from without. We breed our own. We cannot rely on our possession of a secret about the atomic bomb. The only secret worth keeping came out when the bomb went off. It is useless to devote ourselves to great military preparations. As long as we have the atomic bomb, we do not need great military preparations. When other nations have it, these preparations will do us no good. Great military preparations are, in fact, dangers to us; for they serve to convince other nations that we are out to dominate the world. We have never been forced to confront a major power in the course of our imperialism. We took most of what we wanted from the Indians. But I cannot see why we should suppose that other nations will think that we are so much better than they that we, and not they, should be trusted with overwhelming force.

You may well ask how we can get other people to behave themselves. If our hearts are changed, and those of the Russians are not, we shall merely have the satisfaction of being blown up with changed hearts rather than with unchanged ones. I do not expect an American audience to have sufficient faith in the immortality of the soul to regard this as more than a dubious consolation. Here is where the power of example is still valid. When other nations have atomic bombs, we are at every disadvantage in trying to make them behave themselves by force. We are more vulnerable than they. Our hope lies in the processes of education at home and abroad. But the Director of the Bureau of the Budget announced in November that the administration wanted peacetime conscription to have priority over Federal aid to education; and the appropriation to finance the State Department's interpretation of America abroad was with great difficulty raised to $19,000,000, the price of a very small battleship. The budget of UNESCO, the United Nations Educational, Scientific and Cultural Organization, which is supposed to bring peace through education, has been set at $6,000,000 something less than a third of the amount which the University of Chicago alone spent each year during the war on the development of new weapons of destruction.

World government, if it is to last, must rest upon world community. A community rests on communication. This means more than radio, telephones, telegraph, and movies. It requires a common stock of ideas and ideals. Civilization, in fact, is nothing but the deliberate

pursuit of a common ideal. It rests upon a common tradition and upon the recognition of the common humanity of all members of the community.

If we want peace, then, we must work for a community which shall embrace all men. What is the common bond that can unite us, what is the common tradition in which, whether we know it or not, we all live? I should like tentatively to endorse the suggestion of the delegate from Lebanon to the United Nations, who said that the common bond and the common tradition were most clearly revealed in the great works of the human mind and spirit. He suggested that, if all the peoples of the earth could unite in the study of these great works, a world community might arise.

Plainly the task before us, and it is colossal, is an educational task. We have to educate everybody, of every age, at home and abroad. And we have five years, more or less, in which to do it. It looks hopeless, but it is not as bad as it looks. In the first place, we do not know what education can accomplish, because we have never tried it. The first thing we should do is to stop wasting our time on vocational training and the frivolities of the so-called colleges of liberal arts. In the second place, the means of communication are now so numerous, rapid, and cheap that, if we have anything to communicate, we can communicate it to the ends of the earth more easily than our ancestors could have communicated it from Chicago to Cleveland. Horace Mann established the American common school in Massachusetts a hundred years ago. As Mr. William B. Benton pointed out at the UNESCO conference in Paris last month, Horace Mann must have had more trouble in getting in touch with Pittsfield from Boston than he would now have in reaching London, Calcutta, or even Moscow.

In the third place, we have to develop something to communicate that is worth communicating. We must, of course, spread the good news of damnation. But in addition we must have an education that offers some hope of laying the foundations of a world community. I do not say that the Great Books program upon which the University of Chicago and the Encyclopaedia Britannica are now embarked is the only answer to the problem of working out the education the world needs. I do say that it is directed to this end and that it seems promising. I confidently expect to see 15,000,000 Americans studying the great works of the human mind and spirit within five years. The radio programs of the University and the books and films produced by the Britannica, which go all over the world, can be aimed at sowing the seeds of world community. If one university and two companies affiliated with it can make so large a dent on the difficulties before us, I see no reason to despair if the resources of the United States in education and communication can be mobilized for the job.

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It is very late; perhaps nothing can save us. But, with the good news of damnation ringing in our ears, we may remember the words of William the Silent, which should be the motto of the educator in any age. He said: "It is not necessary to hope in order to undertake, or to succeed in order to persevere."

THE STUDY OF ANTIBIOTICS AS A LESSON IN SCIENTIFIC METHODS

One of the most interesting problems in the philosophy of modern science is the relative function of individual investigation and of organized coöperative research. The accomplishments of the military establishments, the National Research Council, and various governmental agencies show us how much may be accomplished along certain lines by large groups of investigators working on a coördinated plan with ample funds. It is probable that the interest of the federal government in this type of research will be continued and extended in the post-war period; but the single investigator or small group of investigators, working alone with the pure passion of scientific curiosity, have their even more vital rôle to play.

The discovery of antibiosis—the harmful influence exerted by one micro-organism through production of substances which are toxic to another micro-organism—dates back to a paper by Pasteur and Joubert in 1877. These investigators and many others, like Frost in the United States, visual-

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ized the possible application of this principle to the treatment of disease. The particular substance of this kind, which is now in the very forefront of medical advance—penicillin—was recognized by Fleming in 1929. Only in 1940 did Florey and his group at Oxford describe the actual therapeutic effect of this substance; and give us our first practical and important antibiotic. Only in 1943 did Waksman report the effects of another antibiotic, streptomycin. These pioneer discoveries were brilliant examples of the opening of new pathways of advance by the imagination of the individual investigator. Fleming and Florey well deserved the knighthoods which they had received and Waksman may rightly be proud of the fame which has made the name of a soil mycologist known to the physicians of the world.

The fact that penicillin had extraordinary power of destroying a wide variety of Gram-positive organisms was quickly established. Its application to the treatment of wounds helped materially to mitigate the horrors of war. In peace its use in the treatment of streptococcal and staphylococcal diseases, of syphilis and of gonorrhea has raised the highest hopes.

During the past year, however, these hopes have become somewhat less exuberant, with respect to its most important field of application, the treatment of syphilis. The best measure of efficacy of treatment in this disease is the relapse of the patient, after his apparent cure and without probable reinfection. The proportion of such relapses began to rise in a disturbing fashion. It was 25 to 50 per cent greater in a series of cases treated in the winter of 1944-1945 as compared with a similar series in the spring of 1944. The urgent question arose as to whether this disconcerting result was due to a change in the potency of the drug or to the development of resistant strains of Treponema.

Here was a problem which clearly called for another type of approach, analysis by a large number of investigators of a massive volume of cases by identical or comparable methods. A study of this type was therefore carried out under the stimulus of the Committee on Medical Research of the O.S.R.D. and—in its later stages—financed and directed by the U. S. Public Health Service. Forty-three clinics throughout the nation participated; and twenty-six different treatment schedules were employed.[4] The variables included the type of penicillin used, the dosage, the interval between treatment in hours (3-6) and the number of days for which treatment was continued (from 3.75 to 8.9 days).[3] The major result of this investigation was to demonstrate that the lessened efficiency of treatment which had been observed was due to changes in the composition of commercial penicillin. In 1945 it had been shown that "penicillin" included at least four different chemical compounds (G X F and K) distinguished by specific side-chains. Recent studies have shown that type G is highly potent and that type K is far less effective than the others, probably because it is more rapidly destroyed in the body. It seems certain that the less satisfactory results obtained with recent penicillin therapy have been mainly due to the fact that commercial penicillins, provided since the middle of 1944, have contained a higher proportion of penicillin of type K. Hence, the immediate problem is the preparation of a penicillin with the least possible proportion of the K factor. This will not be an easy task but surely not one beyond the skill of the mycologist.

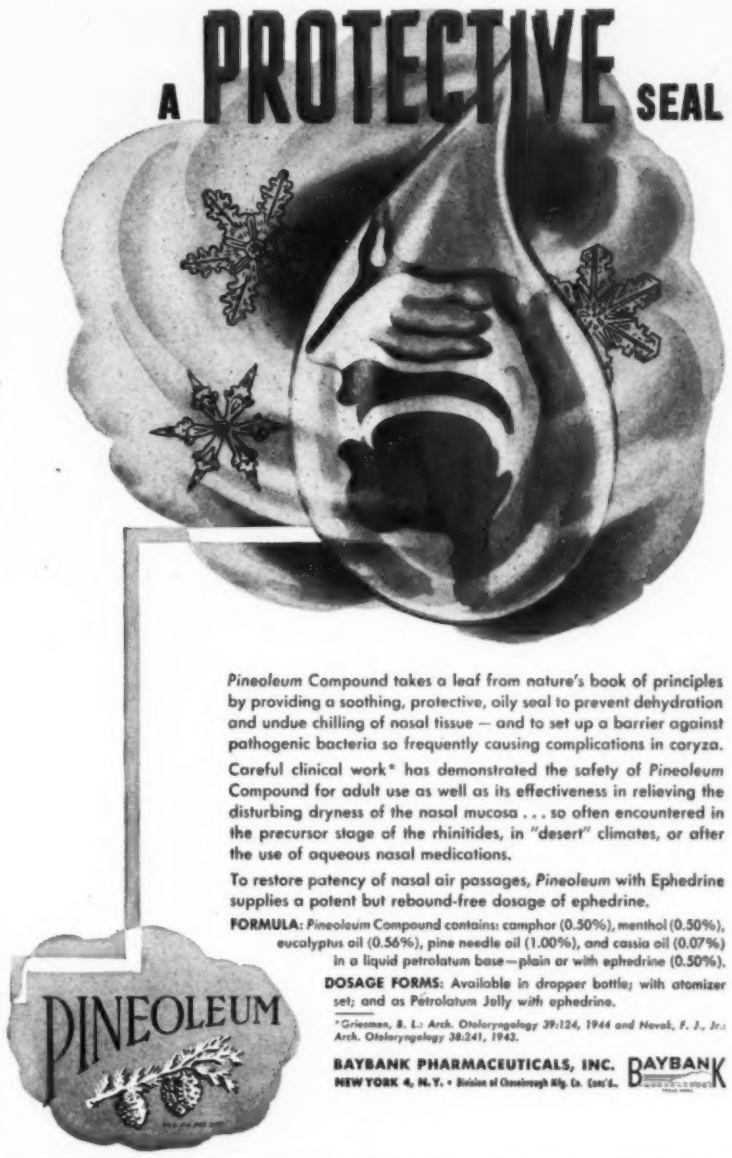
The studies of the committee yielded important data on many other details of treatment procedure including the use of other drugs in concert with penicillin. The primary criterium used in this study[3] was the development of symptoms within a period of 11 months after treatment. The cumulative failures after eleven months ranged from 15 per cent with 2,400,000 units of penicillin to 62 per cent with 600,000 units. The addition of 320 mg. of arsenoxide to 300,000 units of penicillin halved the relapse rate and gave the same result (21 per cent) as the use of 1,200,000 units of penicillin alone. The addition of bismuth (0.6-1.0 gm.) to penicillin over a four month period similarly halved the re-

lapse rate. The report contains many other findings which will materially help in determining the optimum treatment procedure and in estimating its effectiveness.

In the case of streptomycin there is a somewhat similar story of the need for the complementary functions of the imaginative pioneer and the critically evaluating team. The antibiotic discovered by Waksman proved to be destructive for the Gram-negative organisms, just the ones missed by penicillin. Bacteremias and urinary infections due to this group of bacteria, meningitis due to *Hemophilus influenzae* and tularemia are among the diseases which can be treated with this material (although the typhoid and salmonella organisms seem less susceptible).[4] Here, however, the possibility of using streptomycin for the treatment of tuberculosis offers by far the greatest field of application. It is this possibility, as it was the possibility of treating syphilis with penicillin, that has raised the production of these antibiotics to the rank of a multi-million dollar industry in a period of some three years.

Streptomycin is by no means so dramatic in its effects on tuberculosis as is penicillin in its influence on syphilis. It is clear however that the new drug exerts a slow but distinct suppressive influence upon the development of tuberculous infection; and it seems certain that it will provide an essential part of our armamentarium for dealing with that disease. In this case, we shall need more light on the purity of the drug itself, on its introduction into the body so as to reach specific infected tissues and on the possible development of drug-resistant strains of the tubercle bacillus. In particular, the toxic effects of streptomycin which are related to renal function and neurological reactions must be evaluated. McDermott of Cornell University reported at the Connecticut Clinical Congress in September preliminary studies which indicate that the hazards involved are not serious. All of these problems call for intensive study by organized coöperative research programs.

It is probable that—in the future as in the past—the development of new and creative concepts which constitute milestones on the path of knowledge will come from investigators, working by themselves in the light of their individual scientific imaginations. For the working out of techniques of application and the quantitative evaluation of results, the mass method of coöperative research is clearly indicated. The theory of the atomic bomb was evolved by individuals; the bomb itself was prepared by teams. The scientific organization of the future should keep both Pathways open.—Editorial, *American Journal of Public Health*, November 1946.



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*Grieman, B. L.: Arch. Otolaryngology 39:124, 1944 and Novak, F. J., Jr.: Arch. Otolaryngology 38:241, 1943.

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CANCER RESEARCH

Research on cancer has been developed for a longer period and to a greater degree than has the study of any degenerative diseases. In comparison with support of scientific investigations of other diseases, funds for cancer research, both from private and public sources, have been supplied generously. It would seem, from the results so far obtained, that science should now develop new approaches to the cancer problem. New men should be recruited and trained—and young scientists should be encouraged to seek new methods and new approaches in the study of cancer. Among promising lines of investigation in this field, I would mention the search for a method of early diagnosis of a cancerous process. The National Advisory Cancer Council has emphasized this need in commenting upon the disastrous periods of delay between the first examination of a cancer patient by a general practitioner and referral to a cancer specialist; and, indeed, between the visit to the specialist and final application of therapy.—Presidential Address, Rolla E. Dyer, M.D., *American Journal of Tropical Medicine,* March 1946.

SUCCESSFUL FAILURE

The Division of Laboratories of the Illinois Department of Public Health in cooperation with the Samuel Deutsch Serum Center has now for the first time successfully produced experimental bacillary dysentery in man. The incubation period in this experimental disease with a few exceptions was not longer than 24 hours. Sulfadiazine effectively controlled the disease and rapidly suppressed the carrier status.

The original purpose of the experiment has been to find a successful method of producing active immunity, and although this was not accomplished, the fact that bacillary dysentery can be artificially produced in man will aid them and others in further research on immunization.

Previous work has been done on mice, but although a high degree of immunity was produced in mice, the human volunteers vaccinated with the same heat-killed and untraviolet irradiated vaccine used in vaccinating mice showed no significant immunity against experimental infection. Also strains which were most virulent for mice failed to produce clinical infection in man, while other strains of much lower virulence for mice produced severe dysentery in man. —*Illinois Health Messenger,* November 1, 1946.

TRENDS IN MEDICAL EDUCATION

It is common enough to read that the etiology of pneumonia is the pneumococcus. That is not true. Etiology deals with the study of causes, and pneumococci can be present in the body without causing disease. Manifold factors, together with the pneumococcus, may cause pneumococcal pneumonia. Examples of such loose talk and writing could be added almost ad infinitum.

Another indictment of the profession is reflected in the swallowing by thousands and thousands of people of countless numbers of little capsules containing killed bacteria to prevent the common cold, an example of utterly useless and wasteful therapeutics. It is a matter of simple immunological knowledge that such stuff is a complete waste, and yet these products are prescribed daily. What sort of things have we been taught that we should learn physiology and therapeutics from the attractively prepared brochures given the profession by the commercial drug houses?—Edmund E. Simpson, *Journal of the Association of American Medical Colleges,* September 1946.

HEART DISEASE AND TUBERCULOSIS

Heart disease was the cause of 418,062 deaths in 1944, or 30 percent of all deaths reported for all ages in the United States. Tuberculosis was reported as the cause of 54,731 deaths, or 4 percent of all deaths in all age groups. Since 1934, deaths reported as caused by heart disease have increased from 303,724 to 418,062 in 1944—an increase of 38 percent over the annual deaths due to heart disease in 1934. In the same period, tuberculosis deaths declined from 71,609 in 1934 to 54,731 in 1944—a decrease of 24 percent.

This seems to indicate that heart disease is increasing in significance as a cause of death in the population as a whole, while tuberculosis is declining in significance. This is true for the entire population, on the basis of reported deaths, provided that these figures do not lead us into a misconception of the relative importance of tuberculosis as a cause of death among certain age groups. A study of data on age specific death rates discloses that, contrary to the impression given when deaths among people of all ages are considered, tuberculosis still stands out as a leading cause of death among the most important age group of the population—persons between 15 and 44 years of age. Here it is noted that tuberculosis was reported as the cause of death in 26,942 cases while diseases of the heart were reported as the cause of 25,705 deaths out of a total of 185,131. There has been no change in this relationship since 1943.

Any consideration of deaths in the total population may indicate that heart disease should receive the greatest attention. A careful weighing of the facts, however, will lead us to increase and not decrease the force of our attack on tuberculosis, which kills even more persons than heart disease in this principal productive and reproductive age group. This is not to say that heart disease among persons 15 to 44 years of age should be neglected. On the contrary, equal emphasis should be given the problem. However, unlike heart disease, tuberculosis can be effectively controlled, and available methods for that control must be utilized to the utmost and at once. The program of case-finding and follow-up should be expanded rapidly. Only in this way will the morbidity and mortality of tuberculosis be reduced. It is particularly important that the disease be eliminated among the people 15 to 44 years of age. This group constitutes our reservoir of population replenishment and is the source of our most vigorous labor supply. The continuation of a nation's vitality depends upon the health of its people. We must put an end to the costly neglect of known control methods and take up postively the offensive against a disease that kills the young, the hopeful, and the strong.—Editorial. *Public Health Reports,* October 4, 1946.

AMERICAN FOUNDATION FOR OCCUPATIONAL HEALTH

The American Foundation for Occupational Health was founded by the American Association of Industrial Physicians and Surgeons in 1945 for the purpose of promoting activities which will further occupational medicine and occupational health. Among its primary functions will be the aiding of medical schools in organizing their programs for the teaching of occupational medicine, and the promotion of financial grants for fellowships. The Foundation has just compiled a preliminary booklet, "The Teaching of Occupational Medicine" for distribution to medical schools and others who are interested. Other constructive efforts will follow. The Foundation merits the financial support of all of us, physicians, employers, labor and others. Contributions to the Foundation should be tax exempt.

Recent experiences and trends have suggested certain other immediate objectives for attention by industrial physicians. They can be summarized in recommendations as follows:

1. Make greater use of psychosomatic medicine. Evaluate "temperament" more carefully in addition to the usual appraisal of mental and physical qualifications of applicants and employees. This must be done in order to achieve efficient selective placement.

2. Strive for closer cooperation between governmental agencies making mass chest surveys in industry and the respective plant physicians. The doctor, as the plant health officer, should be informed of the results of the surveys in order to expedite a prompt and more efficient follow-up.

3. Lend support to voluntary prepayment medical and hospital care plans in order to make adequate medical care more generally available. Such plans make it economically possible for many employees to take corrective measures recommended at the time of periodic physical examinations.

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The future of occupational medicine is bright. The future of the American Association of Industrial Physicians and Surgeons is bright. In this respect, we are neither at a cross roads nor a fork of the road. Our objectives directed toward health maintenance of the worker are clear and our road is straight ahead.—M. N. Newquist, M.D., *Industrial Medicine*, September 1946.

CHANGES OF ADDRESS AND NEW LOCATIONS

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Allen, Arthur E., from Metropolitan Bank Bldg., to 831 Pillsbury Bldg., Minneapolis 2, Minn.

Alloy, Paul C., PCO '46; 2548 W. Lehigh Ave., Philadelphia 32, Pa.

Alper, Bernard M., PCO '46; 2438 S. Orkney St., Philadelphia 48, Pa.

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Ambrosecchia, Dominick F., from Kansas City, Mo., to Philadelphia College of Osteopathy, 48th & Spruce Sts., Philadelphia 39, Pa.

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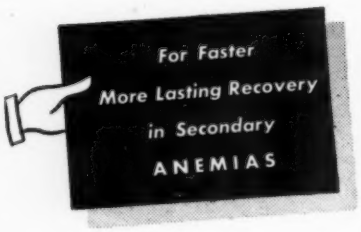

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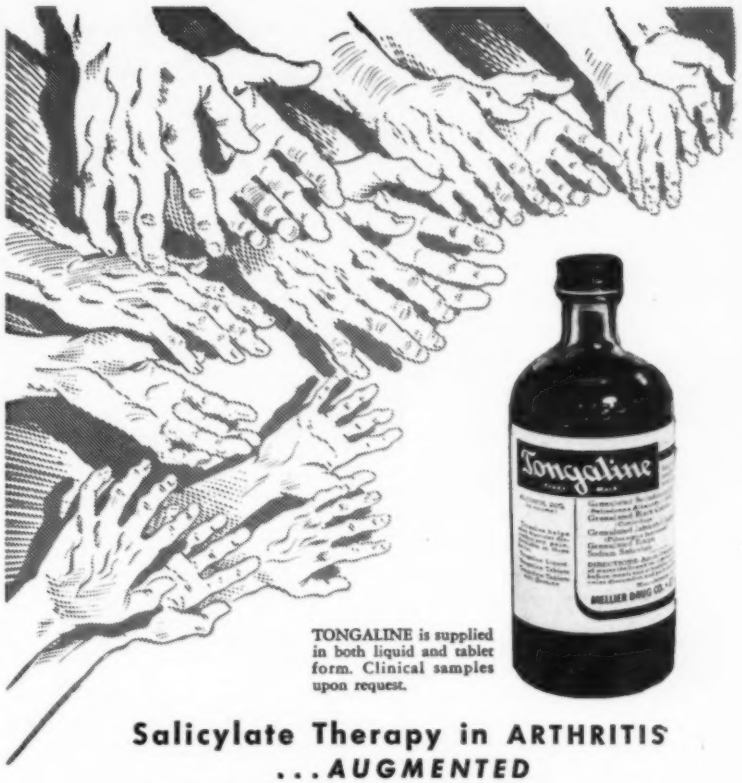

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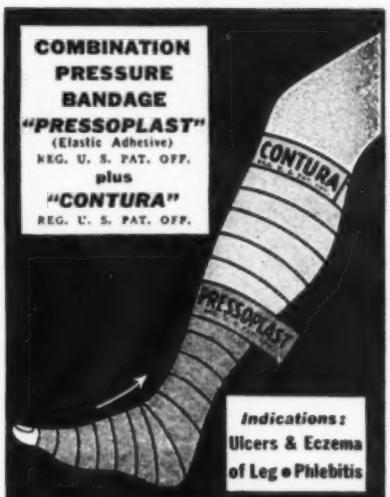

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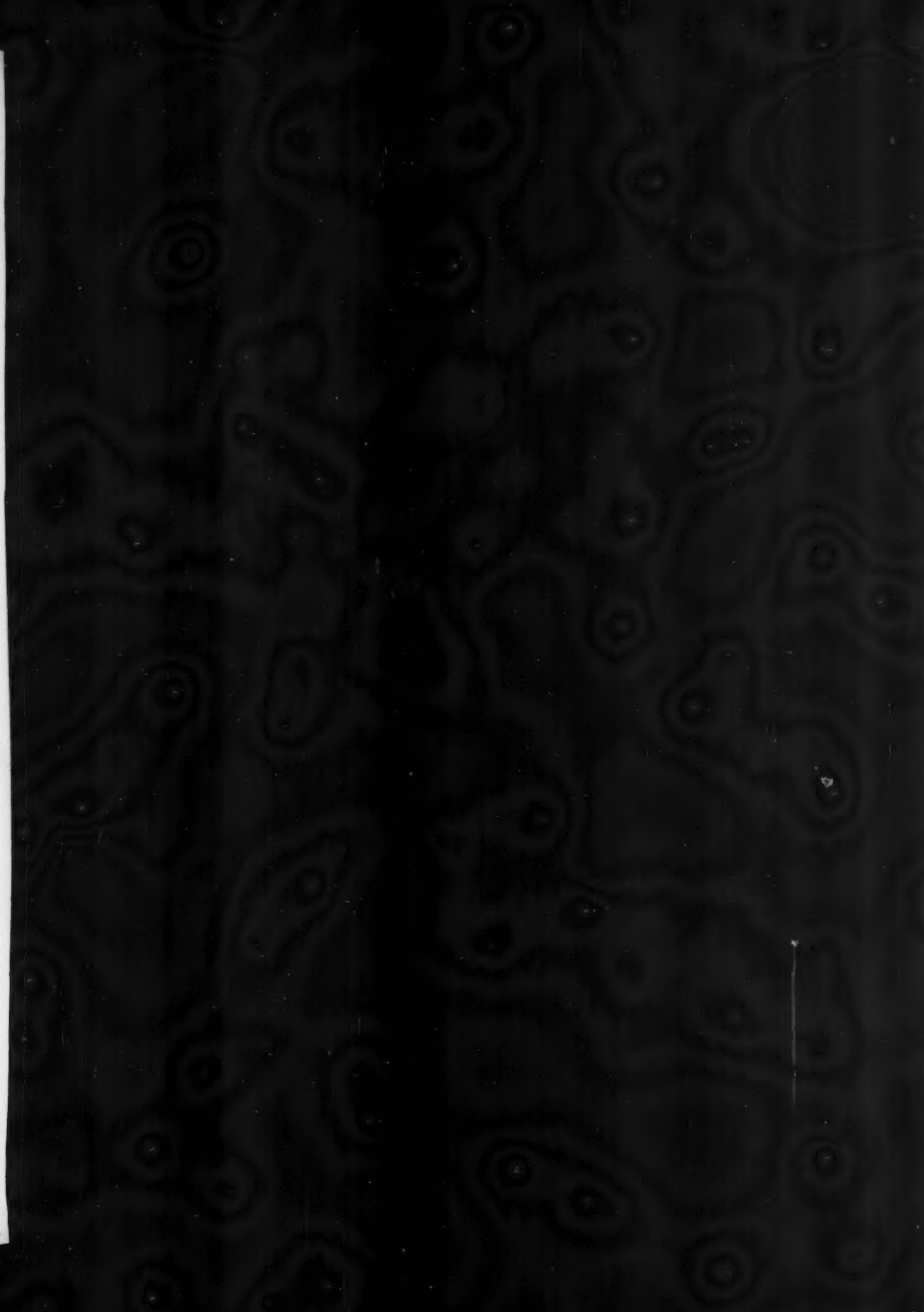

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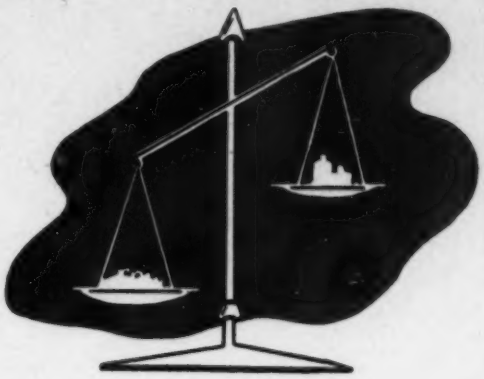

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